

Hitchcock's Machine Tool Blue Book

SEPTEMBER, 1929

TWENTY-FOURTH YEAR

The Mark of Good
Tools for 54 Years



TRADE MARK
REG. U.S. PAT. OFF.

The **CLEVELAND**

CLEVELAND

TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES

TWIST DRILL
COMPANY
CLEVELAND
NEW YORK - CHICAGO - LONDON
SAN FRANCISCO

MEET US AT

The Greatest Machine Shop

IN THE WORLD!

Booth 1 B5 West Annex

National Machine Tool Builders' Exposition

CLEVELAND, OHIO

Sept. 30 to Oct. 4

SEE IN OPERATION

GRIDLEY

Latest $1\frac{1}{2}$ " Multiple Spindle Bar Machine.
4" Multiple Chucking Machine.

ACME

$\frac{9}{16}$ " Model "C" Automatic Screw Machine.

NAMCO

New Opening, Tapering Dies and Collapsing Taps, with interchangeable chasers.

POSITIVE

New Two-in-One Industrial Centrifuge.

THE NATIONAL ACME COMPANY

Cleveland, Ohio

Windsor, Vermont

New York

Detroit

Chicago

F. F. Barber Machinery Company, Ltd., Toronto

Sole Agent for Ontario

Agencies in Principal Foreign Countries

Hitchcock's **Machine Tool Blue Book**

**Selected
Circulation**

**25,000
Monthly**

SEPTEMBER, 1929

TWENTY-FOURTH YEAR

Wonderland—

Those who attend the National Machine Tool Builders' Exposition at Cleveland September 30th to October 4th will see spread before them a veritable panorama of the latest and best of "The Master Tools of Industry."

There are few executives, engineers or production specialists, or whoever they may be, whose knowledge is so complete that they cannot add another degree to their practical education at this Wonderland of latest applied mechanics, with its 16,000 tons of modern equipment in action.

The wheels of mechanical progress are turning rapidly. Nowhere will you find that progress more fully and practically typified than at the Cleveland Exposition. To those who are responsible for production and costs it will give a clearer idea of how to keep in the forefront of the procession.

Published By

Hitchcock Publishing Co.

508 S. Dearborn St.,

Chicago, Ill.

**"One is Known by the
Company
One
Keeps"**



Ball Bearing
throughout with
speeds from
500 to 2000
R. P. M.

The Automobile Industry and American Maxi-Speed Sensitive Radials

IN no industry is production so highly developed as in the automobile industry—and in no industry is the "AMERICAN" Sensitive Radial so widely used. Stutz, Buick, Hudson, Continental, International are just a few of the manufacturers using the "AMERICAN" to keep their production lines moving. Rapid, extremely accurate machine work is demanded by automotive engineers and they find the "AMERICAN"—with the range of a Radial and the speed of a Sensitive Drill—ideal for their purpose. You will, too.

Write for Illustrated Folder giving Complete Details

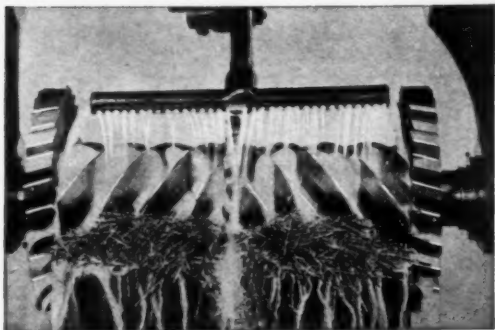
The American Tool Works Company

Cincinnati, Ohio, U. S. A.

LATHES

RADIALS

SHAPERS



COSTS *are* **KEPT DOWN**
by the **REGULAR USE** of
BROWN & SHARPE CUTTERS

Manufacturers find that Brown & Sharpe Cutters require fewer sharpenings, and thus allow the machines to work more steadily.

Because of this, production increases,—more pieces are completed per set-up. The cost of the operation is consequently reduced, and the cost of labor, distributed over a larger number of pieces, is therefore less per piece. In addition, there is a decrease in sharpening costs and a longer cutter life because of the fewer sharpenings required.

Brown & Sharpe Cutters will give you the utmost cutter economy. Complete catalog sent upon request.

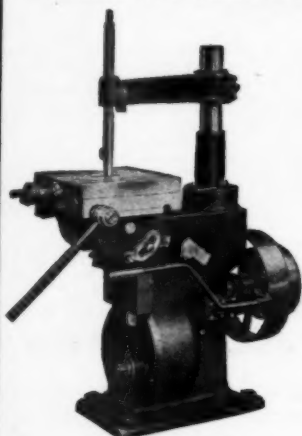
BROWN & SHARPE

BROWN & SHARPE MFG. CO.



PROVIDENCE, R. I., U. S. A.

BAKER KEYSEATERS



Built in
Five Sizes

Designed
for
Miscellaneous
Keyseating
and
Slotting

No. 0 KEYSEATER
Capacity 1" Wide—9" Maximum Stroke

*Exclusive advantages in securing Accuracy and
High Production are:*

1. Draw Stroke Drive.
2. Upper Support for Cutter Bar.
3. Tilting Table (for Taper Keyscuts).
4. Simplicity In Operation.

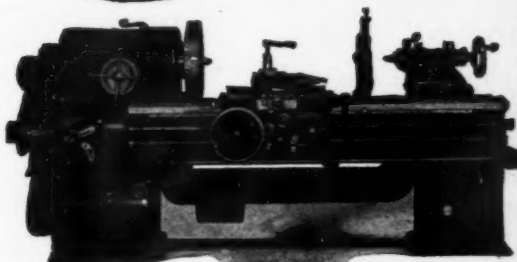
Write for Catalogue

BAKER BROTHERS, INC., Toledo, Ohio

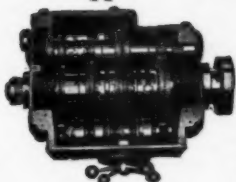
*Builders of Boring, Drilling, Tapping,
Keyseating and Slotting Equipment.*



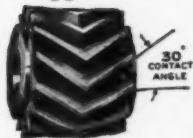
Monotrol



||



||



||

Encourages Production

MONOTROL'S ability to change spindle speeds with one lever saves two-thirds of the time for this operation. It encourages production with simplicity, convenience and speed to meet the requirements of modern industry.

Examine this headstock—note the strong herringbone gears. They are always in mesh and prevent all clashing of gears, stripping of teeth and chatter-marking work.

Whatever the work—if you are interested in greater efficiency, accuracy and long life investigate the Monotrol. Write today for complete data on this better lathe.



The Sidney Machine Tool Co.
SIDNEY, OHIO

Another Reason for Choosing Monarch Lathes



Triple-Tested Accuracy

WHILE Monarch Lathes are being assembled, each part is carefully tested to make certain that it is accurate and in perfect adjustment. Then, when the lathe is ready to leave the assembly department, it is given *three* complete and final inspections! A record sheet of the last test is supplied to the purchaser. It shows the actual condition of the lathe at the time of shipment and is a guarantee of accuracy.

Alignment tests are carefully made. The limit of error allowed is .001". Test bars from 18" to 24" are used. Leadscrews are tested on the Hartness Screw Thread Comparator made especially for this work. They are further tested for accuracy on a Zeiss lead-testing machine that records errors of .0001".

Two inspectors are required to stamp their initials on the end of the bed of each lathe when their work is completed and the lathe has been found to be in perfect adjustment.

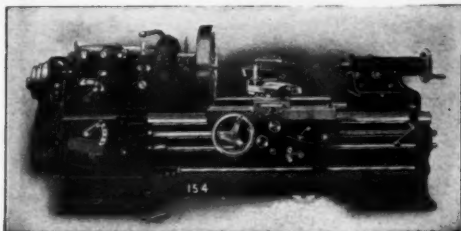
Write for new bulletin
"Additional Reasons Why Monarch Lathes
Should Be Your Choice".

The Monarch Machine Tool Co., Sidney, O.
New York Sales Office: 857 Graybar Bldg.

Monarch Lathes

Helical Gears - Timken Bearings
SMOOTHER...QUIETER...MORE POWERFUL

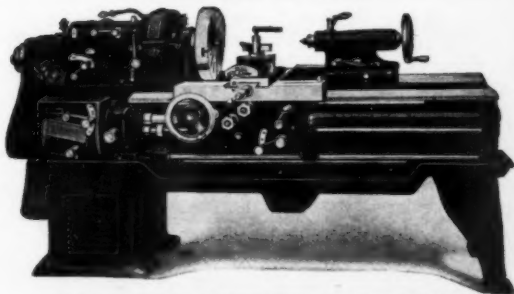
Specialists 25 Years



CINCINNATI LATHES

guarantee the quantity and quality of work you produce. High grade materials and workmanship assure you the best of service and avoidance of repair bills. Furnished in sizes from 16" to 32" inclusive, in 2' lengths of bed from 6' and up. Cone or geared head types, for belt or motor drive. Completely equipped for tool room, manufacturing or production work. Specify CINCINNATI Lathes—*Better be Safe than Sorry.*

SEND FOR CATALOG



**Be Sure and See CINCINNATI LATHES at the
Cleveland Show—Booth 2-W-15**

The Cincinnati Lathe & Tool Co.
Oakley, Cincinnati, Ohio



**11" Gold Seal
Heavy Duty
Precision
Tool Room
Lathe**

Built for heavy cuts and fast work, yet aligned with an accuracy of .0005". Graduations are provided at every point. The hole through the spindle is $1\frac{1}{16}$ " diameter, and the lathe takes collets up to $\frac{3}{8}$ ". All bearings are over-size. Made in motor, and single pulley belt-driven models.

**The Small Lathe
you have been looking for**

Powered far beyond its apparent size, generously proportioned and equipped with a completeness unequalled in its field, the 11" Gold Seal Heavy Duty Precision Tool Room Lathe offers the manufacturer a long needed addition to his lathe equipment.

The time saving convenience, precision and versatility of this machine will reduce the cost of producing a wide range of parts—much work can be handled with it that formerly had to be done upon a larger machine.

All details sent upon request

THE SEBASTIAN LATHE COMPANY
313 Culvert Street, Cincinnati, Ohio
NEW YORK ADDRESS: Room 372, 50 Church St.

SEBASTIAN LATHES

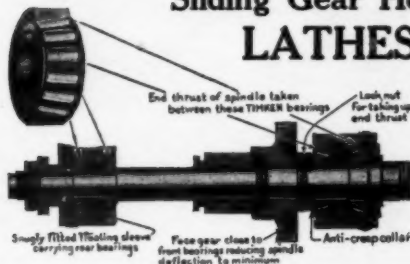
Features!

**NEW
MODEL**

REED-PRENTICE

Sliding Gear Head

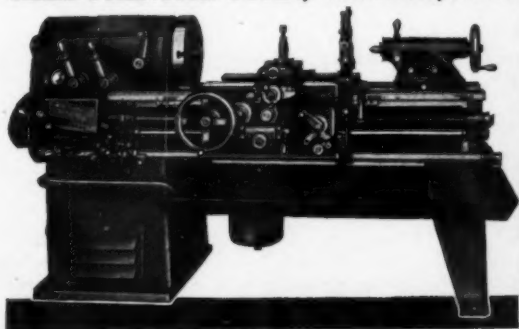
LATHES

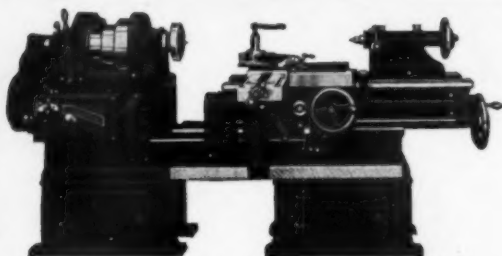


Four Bearing Precision TIMKEN Spindle Mounting.
Headstock gearing of SAE 3250 electric furnace steel.
Spindle of SAE 6140 heat treated chrome Vanadium Steel.
Cross feed screw heat treated chrome Vanadium Steel with double ball thrust, etc.

Our circulars detail complete construction features—send for them.

REED-PRENTICE CORP., Worcester, Mass.





Series "AG"—18/36" and 20/40" Extension Bed Gap Lathe

A Lathe suitable for a large range and variety of work at a minimum expenditure for equipment. A convenient lathe for small diameter work and one that will handle the large diameter work when occasion requires. Top bed slides along the lower one, perfect alignment in all positions. Heavy construction throughout.

Furnished either Belt or Motor driven with double back gear, quick change gear box, compound rest & c. all complete.

18/36"x6' Belt Driven **\$1725.00**
Weight 3800 lbs.

20/40"x6' Belt Driven **\$1835.00**
Weight 4000 lbs.

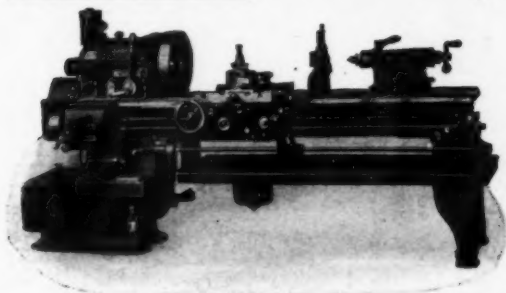
Motor prices on application

*A type of lathe worth considering
Write for information*

The Rahn - Larmon Co.
2943 Spring Grove Ave., CINCINNATI, OHIO

BRADFORD

"All Geared" LATHES



BETTER Lathe Work and MORE of It

can be turned out on BRADFORD "All Geared" Lathes. They are built along entirely new lines, combining enormous driving power with smooth running and ease of control in a manner never before accomplished. Their many features are described in detail in our "All Geared" Bulletin.

Send for a Copy Today



Bradford Unit Type Drilling and Tapping Heads

Self-contained, motor driven units, designed for one or more heads to be built into one unit at any angle from horizontal to vertical. Spindle speeds from 75 to 2000 R. P. M. For single or multiple spindle drilling and tapping.

Illustrated Folder on Request

The Bradford Machine Tool Co.

Precision Lathe Builders Since 1840

657-671 Evans Street,

Cincinnati, Ohio

Purchasing Performance

If it's performance you're after—faster and better productivity—choose the CLEVELAND Planer. These Open Side Planers are designed and built to measure up to modern production requirements. *Easy to control*—all levers are reached from one position, saving operator's steps and energy. *Accurate*—the rigid construction and fewer parts guarantee precision and long life. It will pay you to get the full details.

The Cleveland Planer Company

Established 1900

3148 Superior Ave.,

Cleveland, Ohio

Over 1100 Installations

Send
for
Descriptive
Folder
NOW!

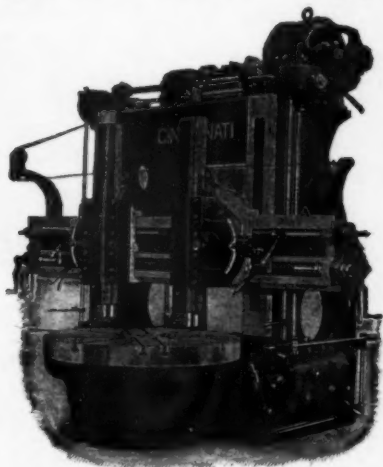


26 in.
to
72 in.

The Open Side Planer with the Column
Base Cast Integral with its Closed Top Bed.

CINCINNATI 48", 60", 72", 84"

Rapid Traverse Boring Mill



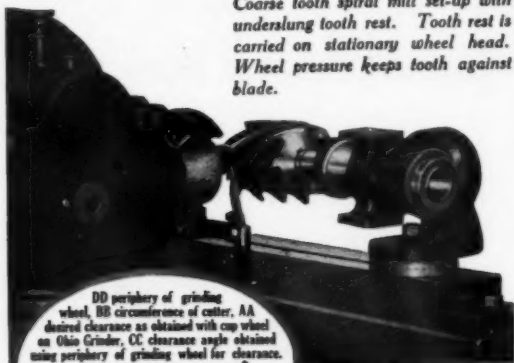
Among its salient features are—Heavily reinforced table, driven by bevel gear and pinion; rapid power traverse in all directions; centralized control, with all fine adjustments, rapid traverse, hand operating handle, feed change, feed reverse, speed change, table control and brake levers, all within immediate reach of operator; box type housing; steel gears in feed and speed boxes; tumbler type gear changes, etc., etc.

Write for Bulletin of Cincinnati Rapid Traverse Boring Mills, containing specifications and complete description, from which the practical mechanic will readily understand why the "Cincinnati" is selected for RAPID PRODUCTION.

The Cincinnati Planer Co.

Cincinnati, Ohio, U. S. A.

Coarse tooth spiral mill set-up with underslung tooth rest. Tooth rest is carried on stationary wheel head. Wheel pressure keeps tooth against blade.



DD periphery of grinding wheel, BB circumference of cutter, AA desired clearance as obtained with cup wheel on Ohio Grinder, CC clearance angle obtained using periphery of grinding wheel for clearance.



**More cutting
—Less grinding**

With Solid-Backed Cutting Edge

ON the Oesterlein Grinder, a cup-shaped wheel grinds a straight-line clearance that results in a solid-backed cutting edge. This type of edge lasts much longer than any hollow ground one. The advantages of a solid-backed cutting edge? It stands up longer and results in less time out for maintenance, increased output, reduced cost of production. These savings characterize the Oesterlein Grinder and soon pay for the machine.

Write for booklet E—a treatise on correct grinding of metal-cutting tools.

The Oesterlein Machine Company
Cincinnati, Ohio

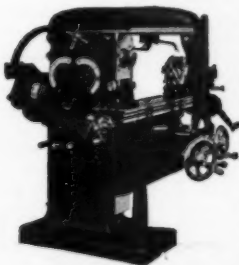
OESTERLEIN
OHIO
MILLING
GRINDING DRILLING
EQUIPMENT

Save \$700 to \$1000 on a Miller!

WITH these machines a high standard of accurate milling can be maintained. The standardized spindles are forged from high carbon chrome nickel—every gear, shaft, clutch and stud in the driving and feed mechanism is either pack hardened or heat treated.

No. 2 Ohio
Universal
Constant Speed
\$ 1775

No. 3 Ohio
Plain
Constant Speed
\$ 1880



Consider

these features also:

- (1) Vee-flat overarm; (2) complete interchangeability of arbors, chuck, etc.; (3) fully inclosed motor—readily accessible; (4) quick-stop brake; (5) disengaging hand wheels; (6) automatic lubrication; (7) 16 feeds—16 speeds; (8) sensitive control starting lever; (9) pilot wheel for each operation to overarm; (10) gauging strip.

Reasons for Low Prices

Increased production makes possible manufacturing economies.

While incorporating every feature essential for economical milling—these machines run right handed and do not have reversing mechanism, dual control or frictionless bearings.

WRITE FOR MILLER CATALOG

THE OESTERLEIN MACHINE CO.
CINCINNATI, OHIO

Our Latest Type Multi-Duty All Ball Bearing Radial Drill



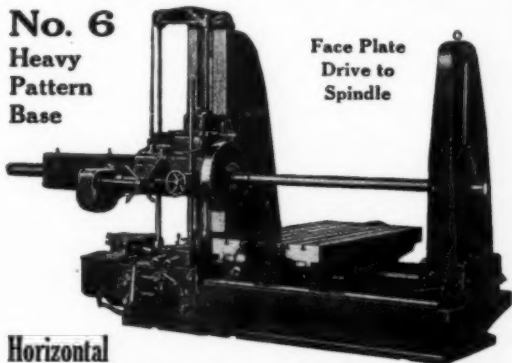
Sizes 3 to 8 Ft.

The Dresses Machine Tool Co.
CINCINNATI, OHIO

The New Improved **DEFIANCE**

**No. 6
Heavy
Pattern
Base**

**Face Plate
Drive to
Spindle**



Horizontal Boring, Milling, Drilling and Tapping Machine

The Defiance Line of Horizontal Boring Mills embodies many special features including independent rapid traverse to head and platen in all directions, moving 84" per minute; thoroughly enclosed head; forced feed lubrication; centralized control; unit construction of head, feed and speed boxes, and many more efficient aids to production. Simplicity, great strength and ample power enable you to handle a wide range of work with profit.

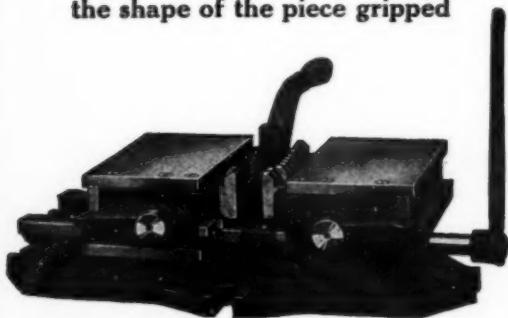
Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines, Rail Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

**The Defiance Machine Works
Defiance, Ohio**

**Designers and Builders of Precision-Production Machine Tools and
Special Woodworking Machinery**

What You've Been Looking For

A vise with jaws that assume
the shape of the piece gripped



Berjo

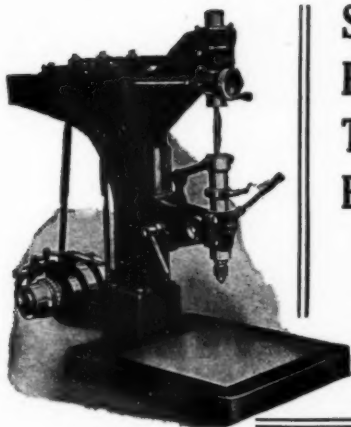
Machine and Bench Vises

Berjo vises have multiple compensating jaws which hold *regular or irregular* shaped parts positively and securely. The principle

is simple. A practical mechanical arrangement back of the jaws allows them to follow the contour of the work. Two main jaws, one fixed, one movable, hold the segmented compensating jaws. Berjo vises are suitable for all classes of work, but particularly adaptable to the tool room and the shop where a number of variously shaped pieces are going through.

Manufactured by the makers of Avey Drilling Equipment.

The Avey Drilling Machine Co.
CINCINNATI



**Speed
Eliminates
Twist Drill
Breakage.**

WHY ?

**THE
SPEED KING**

Avey

**No.
 $\frac{1}{2}$**

**SPEED
12,000
R. P. M.**

*Ask for full
Information*

A fine twist drill will only stand so much pressure with resistance until it snaps.

Put enough speed behind that little tool and it cuts so fast that resistance disappears and it's just like cutting butter.

It Pays to Specialize

**The Avey Drilling Machine Co.
CINCINNATI, OHIO**

Production Accuracy at low operating cost



TIMKEN
ROLLER
BEARINGS

Ready for
the Job!

15-inch Sliding Head Sensitive Drill

Mounted on Box Type
Column with
Oil Groove Table

Spindle Speeds—
400, 850, 1750 R. P. M.

Capacity 0 to $\frac{1}{2}$ ".

This drill can be furnished
in speeds ranging from
400 to 10,000 R. P. M.

SPECIFICATIONS—1 Spindle

Overhang.....	7 $\frac{1}{2}$ "
Vertical adjustment of sliding head.....	9 $\frac{1}{2}$ "
Traverse of feed rack.....	3 $\frac{1}{2}$ "
Center of spindle to column at gap.....	8 $\frac{1}{2}$ "
Center of spindle to planed column face.....	7 $\frac{1}{2}$ "
Distance between spindle centers.....	
Size of Table.....	16"x20"
Size of base of lower column.....	23"x18"
Maximum Distance from spindle to table.....	33"
Width of table bearing on column.....	4"
Height to upper edge of top bearing cap.....	73"
Net wt. mounted on base & pedestal.....	505 lbs.
Crated weight.....	613 lbs.

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois

New York Branch
407 Broome St.

Complete stock
carried at branches

San Francisco Branch
955 Folsom St.

The Improved Canedy-Otto No. 29

Ready for the Job



**Completely
Motorized—
Also Furnished
Belt Driven**

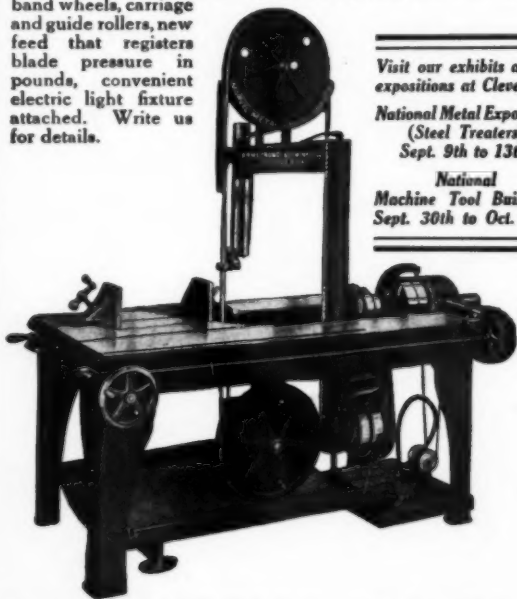
The Improved Canedy-Otto Sensitive Bench Drill comes complete with toggle switch, cord, socket, 1½" endless leather belt, and chuck. The motor is adjusted on a sliding base that maintains the proper tension on the belt at all times, and cuts lost motion and vibration to the minimum. Now equipped with a 3-step cone pulley which gives three spindle speeds of 720, 1430 and 3000 R. P. M. Complete information, with close price, upon request.

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois
 New York Branch Complete stock San Francisco Branch
 407 Broome St. carried at branches 955 Folsom St.

MARVEL

The Marvel No. 8 Metal Band Saw is a standard tool in hundreds of the best shops. It cuts off square or any angle right or left to 45 degrees, has big roomy bed or work table, three cutting speeds, quick acting vise, ball bearing band wheels, carriage and guide rollers, new feed that registers blade pressure in pounds, convenient electric light fixture attached. Write us for details.



*Visit our exhibits at two
expositions at Cleveland:*

*National Metal Exposition
(Steel Treeters)
Sept. 9th to 13th.*

*National
Machine Tool Builders,
Sept. 30th to Oct. 4th.*

ARMSTRONG - BLUM

341 N. Francisco Av.,

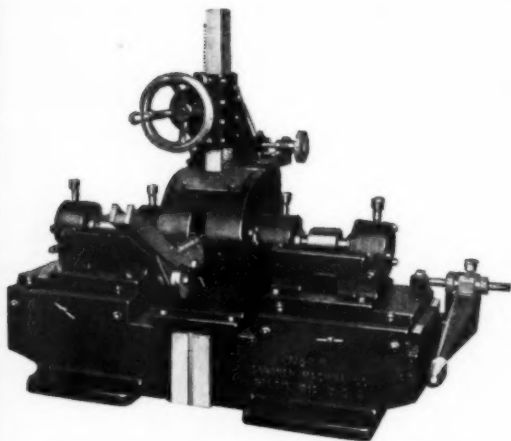
MARVEL

BLADES THAT ARE DIFFERENT

High-Speed-Edge hack saw blades have a cutting edge of *Genuine High Speed Steel* welded to a back of special heat treated alloy steel. They outlast the old style common blades 6 to 10 times and are guaranteed *Not To Break* in any machine. *The Blade That Appeals To The Man In The Shop.* Get the details from us.



MANUFACTURING CO.
CHICAGO, ILLINOIS



For small parallel flat surfaces

A GREAT many small parts having opposite parallel flat surfaces of approximately equal area, can be handled with great rapidity and economy on the

GARDNER No. 77— 10" DOUBLE SPINDLE DISC GRINDER

*Find out what this tool can accomplish FOR YOU—
Write for Bulletin No. 77!*

Gardner Machine Company
Near Wheeler Ave., Beloit, Wis., U. S. A.

**Cut Machine
Finishing Cost
and Time
In Half**

with the

Nedco

**Sanding and Polishing
Machine**



The NEDCO Sanding and Polishing Machine produces a perfect surface on castings or rubs down filler in $\frac{1}{2}$ to $\frac{1}{3}$ the time ordinarily required for hand work.



The NEDCO is built for strenuous service, and uses any standard $9\frac{1}{4}$ " abrasive disc. Weight 12 lbs. Equipped with $\frac{1}{4}$ HP universal motor either 110 or 220 volts—working speeds Model "N" 1750 R. P. M. Model "S" 850 R. P. M.

Price \$85.00 F. O. B. NATICK

Write for Descriptive Circular

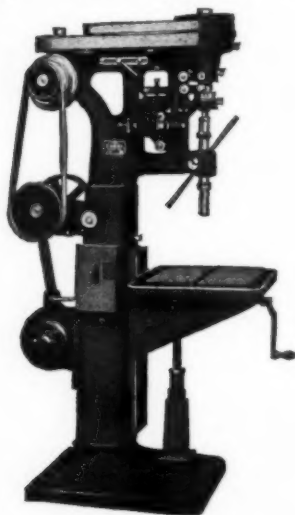
**THE NEDCO
COMPANY**

Dept. H

NATICK, MASS.

HAMMOND

Drilling and Tapping Machines



Write for Circular

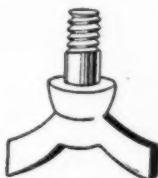
The Hammond Mfg. Co.

7808 Kinsman Road,

Cleveland, Ohio

Threading 1200 pieces per Hour

These brass wing
screws shown are
being threaded on
our



Standard High Speed Tapping Machine



*Let us show you what can
be done on your work*

Leland-Gifford Company, - Worcester, Mass., U.S.A.

BRANCHES

BOSTON CHICAGO CLEVELAND
DETROIT NEW YORK
PITTSBURGH ROCHESTER

AGENTS

Hendrie & Boldhoff	Dewer
F. E. Satterlee Company	Minneapolis
Smith Booth Usher Co.,	Los Angeles
Herberts-Moore Machinery Co.,	San Francisco
F. F. Barber Machinery Co.	Toronto

LELAND-GIFFORD

The Cincinnati Line

TRADE MARK

Of

Electric
Drills
Grinders
Buffers



1/2 in.
Portable
Electric
Drill

Leads Them All!

THE most complete line in the country—try them on your hardest production jobs. They'll prove equal to any demand—*speed—economy of operation—dependability—everything!* Built by men who *know*, and whose years of experience are at your disposal, without obligation, in solving of your grinding, drilling or buffing problems.

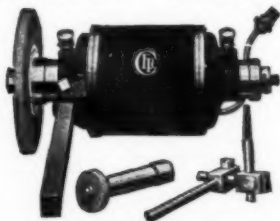
A card will bring you our complete catalog

**The Cincinnati Electrical
Tool Co.**

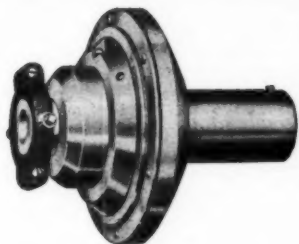
2700 Madison Rd., Cincinnati, Ohio



Floor Grinder



Tool Post Grinder



***"To buy another clutch
when the Conway Disc
is available under your
specification is to invest
in obsolescence."***

Centripetal action, enclosure,
balance, easy engagement,
instant release, and dragfree
idling are salient features
that co-ordinate to give
splendid and smooth per-
formance. In what other
clutch can they be found ?

The Conway Clutch Co.

West 6th Street,

Cincinnati, Ohio

"The Conway Disc is a splendid Clutch."



NEW

**The No. 2
Heavy Duty
Automatic
Screw Driving
Machine
with
Magazine Feed**

Ready to Cut Your Costs

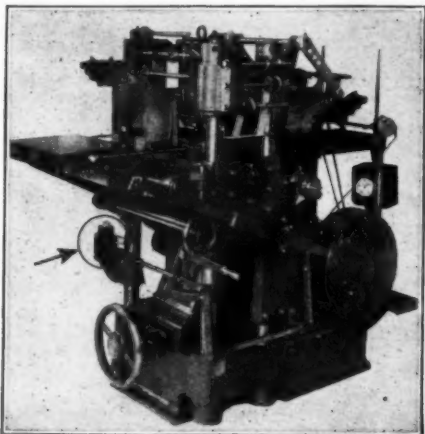
ESPECIALLY adapted for high speed production and long uninterrupted service, the NEW Reynolds incorporates a number of improvements and refinements, chief of which is the Chuck with the Equalizing Jaws. Drives screws to the center of an 18" circle in work not over 18" high, while gap column can be substituted to drive screws to center of 48" circle in work not over 6" high.

THE No. 2 will magazine and drive, without change or adjustment, any three consecutive sizes of wood or machine screws from No. 6 to No. 14 inclusive. It will pay to investigate this valuable production unit.

Give the dimensions overall of your work, the length and gauge of screws used, and we'll send facts and figures showing how the REYNOLDS will save YOU money ? ? ?

The Reynolds Machine Company
Dept. H. H. Massillon, Ohio

Don't Design a Safety Stop for that
New Machine—Use
Simplex Safety Stop Motions



SIMPLEX STOPS are standard equipment on Standard Machinery Co.'s automatic feed embossing presses for book covers as shown above. The Stop protects the press from loss of production and die damage due to bad covers, jams, mis-feeds, etc.

The Simplex Stop will protect any number of danger points at the cost of protecting one with a mechanical stop. 100% dependable—the irreducible minimum of maintainance. Operates from lighting circuit or from battery, generator or transformer. Guarantees absolute protection, at rock bottom cost—it will pay you to investigate.

Descriptive Booklet containing sample wiring diagrams, sent upon request

The Atlantic Company
Box 133, Station B., Brooklyn, N. Y.

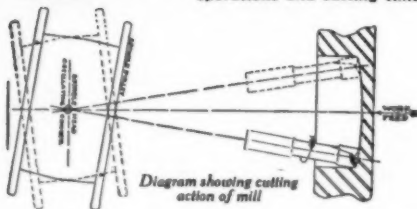
SUPERIOR Slot Milling Machine



Maximum Capacity
Slots $\frac{3}{8}$ in. wide
 $2\frac{1}{4}$ in. long

THIS MACHINE is designed for milling slots accurately and rapidly with a two lip end mill, by swinging the mill in an arc of a circle while it is revolving. The swinging of the mill is controlled by an adjustable throw crank. Table carrying work is fed automatically and the rate can be varied as required. Equipped with ball bearing spindle. Table is $6\frac{1}{2}$ " wide and $9\frac{1}{2}$ " long over oil channels; working surface $3\frac{1}{2}$ " wide, $7\frac{1}{2}$ " long. Travel, $4\frac{1}{2}$ " Teeslot $\frac{5}{8}$ " wide.

*Send for Descriptive Bulletin with
Diagrams showing various slotting
operations and cutting time*



Material—Machine Steel
Time 3 minutes



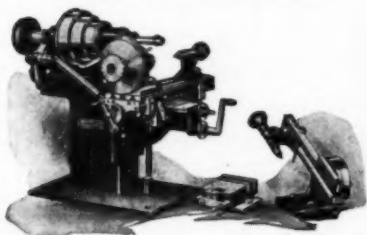
Material—Machine Steel
Time $3\frac{1}{2}$ minutes

Superior Machine & Engineering Co.
1920 Ferry Park, Detroit, Mich.

HARDINGE

Supreme Quality

*Has been built into the
Cataract Bench Miller*



YOU WILL FIND Cataracts ideal machines where production is demanded at minimum cost. Their speed, accuracy and adaptability is such that they invariably increase output.

Beside their wide range of feeds, they have independent steel indexes graduated to read to thousandths of an inch. They are equally well adapted to the demands of the lighter tool room, mixed or production work.

*On request we will mail you full
details and the moderate price*

Hardinge Brothers Inc.
4149 Ravenswood Ave.
Chicago, Ill.



The **ROCKWELL** **Hardness Tester**

Only one Dial to Watch.

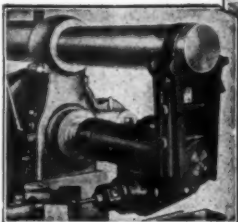
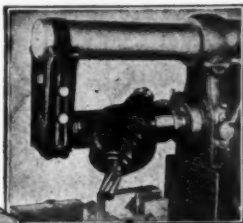
Speedy and Simple

WILSON-MAEULEN **CO**
INCORPORATED

735 East 143rd Street,

New York

**Throw
off
fixed
milling
conditions!**



Don't question the ability of your millers on an awkward job limited by fine plus or minus tolerances!

For the usual or unusual work, equip any Standard Round Overarm Miller with a PORTER-CABLE Milling Attachment—and effect the economies that can only result from flexibility like this.

PORTER-CABLE Milling Attachments drastically reduce set-ups. After all, it costs less to move the cutter than the work.

They can be attached to miller in 3 minutes. Can be operated at any angle in any plane.

They increase miller capacity by doing intricate and awkward jobs formerly done by hand.

Don't be handicapped by fixed milling conditions. Consider the several economies available in **PORTER-CABLE** High Speed Milling Attachments—made for hand and power feeds—5 sizes, one for every requirement.

Booklet details every size, every feature.

Write for it!

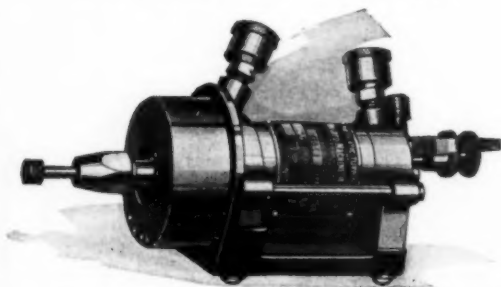
PORTER-CABLE

MACHINE COMPANY

1730 North Salina St., Syracuse, N. Y.

☎ 3792

60,000 R. P. M. Noiseless--Vibrationless Internal Grinding



This 60,000 R. P. M. Pneumatic Turbine has the proper speed to give wheels of very small diameter their maximum cutting capacity and produce work of extreme accuracy. The unit runs noiselessly and without vibration.

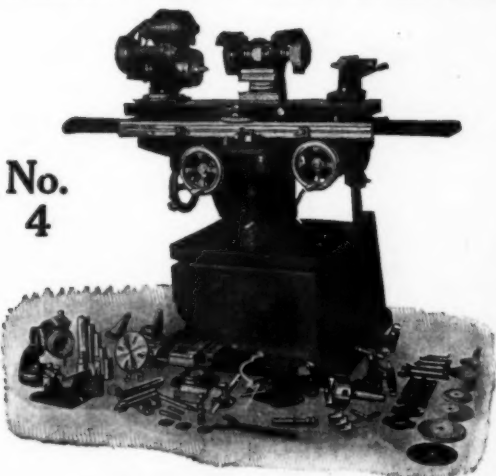
Onsrud Pneumatic Turbines constitute the ideal High Speed drive—their principle involves no other wearing parts but the bearings. These are kept cold by the exhaust air expanding within the turbine, contributing to their unusually long life. Dust and grit is prevented from entering the bearings by the natural construction of the unit.

Onsrud Pneumatic Turbines are built in various sizes having speeds of from 15,000 to 60,000 R. P. M. They have a wide range of utility and have solved many grinding, buffing and polishing problems.

WRITE FOR BULLETINS

Onsrud Machine Works, Inc.
3906-32 Palmer St., Chicago, Ill.

Grand Rapids Universal Cutter and Tool Grinders



Sharp Tools Cut Production Costs

Good tool room equipment keeps your expensive production machinery going at top speed. The Grand Rapids No. 4 Universal Grinder is heavy and powerful, with a remarkable wide range of work. Wet or dry cutting jobs are easily accommodated with the complete attachments furnished. Motor or belt drive, with or without automatic feed. Large table, ease and rapidity of operation, long life and low maintenance are some of the factors guaranteeing efficient operation.

We make a complete line of Grinders—Send for details

GAILMEYER AND LIVINGSTON CO.

342 Straight Ave., S. W.,

Grand Rapids, Mich.

Illinois Plain and Surface Grinder



No. 10

This machine has been designed to meet the popular demand for those wanting a general purpose grinder. One end is arranged for surface grinding and the other end for tool or plain grinding.

Special Features

Base: Box type construction, with liberal bearing space for knee, insuring accuracy.

Knee: Supported by elevating screw having ball thrust bearing. Hand wheel graduated in thousandths, long bearing on column.

Spindle: Made of High Carbon Steel, heat treated, runs in 4 Timken tapered roller bearings, adjustment collars to each bearing. Bronze bearings furnished, if desired.

Countershaft: Ball bearing with tight and loose pulley and belt shifting device.

Lubrication: Alemite system for spindle and countershaft.

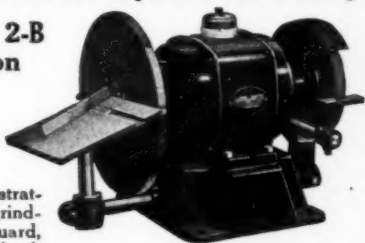
Write for Complete Specifications and Prices

Illinois Machine & Mfg. Co.
LaSalle, Illinois

Winterhoff Portable Electric Grinders

Equipped with Timken Tapered Roller Bearings

Nos. 2-A & 2-B
Combination
Tool and
Disc
Grinders



Complete, as illustrated, with 10"x1" grinding wheel and guard, 12" or 14" disc wheel, tilting table with protractor guard, toggle switch and cord fitted with attachment plug. Repulsion induction motor, 1/2 or 3/4 h. p., single phase, a. c. or d. c. Other models include the No. 1-B, an 8" or 10" Portable Grinder; Nos. 3A and 3B Double End Disc Grinders, 12" or 14" disc.

Write for Grinder Catalog, including Low Prices

Portable Electric High Speed Sensitive Bench Drill



Positively the greatest value ever offered in a machine of this kind. Equipped with 1/4 h. p. motor, two step cone pulley giving speeds of 1100 and 2200 r. p. m., horizontal drive gives full power to the 1 1/4" endless belt. Driven cone has bearing support at each end; all parts accurately machined and interchangeable, complete with Jacobs Chuck.

No. 0 JUNIOR DRILL
10 1/2" Swing, 0 to 3/8" Capacity

We also make a line of portable,
electric Saws and Sanders

Detailed Information Sent Upon Request

Winterhoff Tool & Machine Co.
109 South Elkhart Ave., Elkhart, Ind.

Taylor & Fenn Belt Driven
No. 12 Spring Press



**UNIFORM BLOW
SPRING PRESSES**

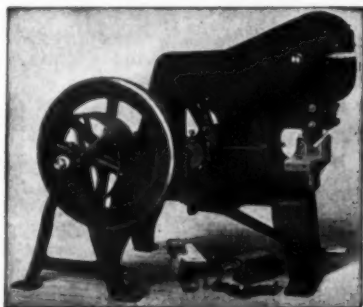
Are made in
three sizes,
with either
single or
double action

Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of $3\frac{1}{4}$ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machine after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

Descriptive circular gladly sent upon request

The Taylor & Fenn Co.
Hartford, Conn., U. S. A.

BELOIT



Combined Power Punch and Shear

Built in seven sizes. Nos. 51, 52, 53, 54, 55, 55½ and 56

Direct connected motor or belt drive

THE best all-around punch and shear in a combined machine of moderate cost. Really three machines in one, for it combines the single end punch with the alligator shear for flat bars, and the round cutters for round bars—*and all for the price of one single end machine!*

HEAVY, substantial, amply back geared to require the minimum amount of power, compact, easy to operate. Can be equipped with angle shearing attachment, angle notching and coping attachments if desired.

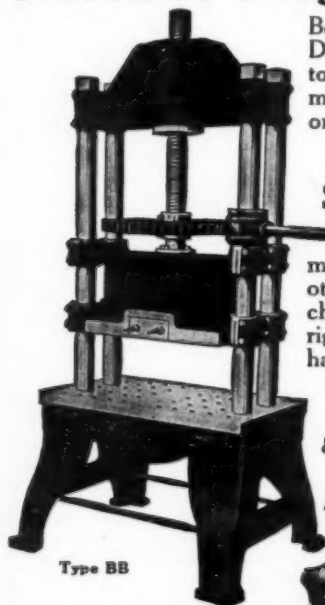
Write Today for Catalog and Prices

Hendley & Whittemore Co.

100 S. State St., BELOIT, WIS.

PUNCHES—SHEARS—BENDING ROLLS

Perfect Alignment



Type BB

Between Punch and Die enables one man to do speedier and more accurate work on this

Four Post Screw Press

than two men can do on any other type of machine. Sensitive and rigid in operation, it has power to shear in any die within its capacity.

**80 tons pressure—
table 20"x36"**

Also three smaller sizes

Surface Grinder

Silent efficiency is the action of this powerful and rigid surface grinder—equipped with graduated feeds and all the latest attachments.

Price and details on inquiry

**JARECKI MACHINE
AND TOOL CO.**

Department A

GRAND RAPIDS,

MICHIGAN



KRW Hydraulic and Sensitive ARBOR PRESS

**Gives All - Around
Efficiency at very
Low Cost**

THE latest improved combination KRW Hydraulic and Sensitive Arbor Press includes many improvements not found in any other press, at any price.

35 TONS CAPACITY

Hydraulic pressure easily operated by one hand controls movement of ram to one-thousandth of an inch movement. Automatic air vent and pinion brake holds ram at any height when not in use.

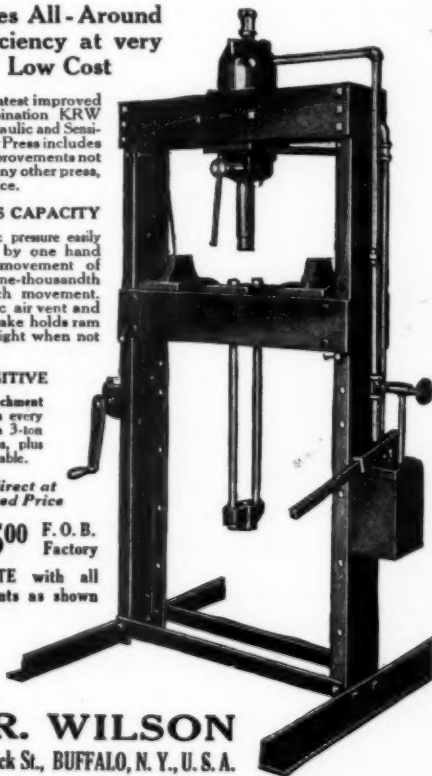
SENSITIVE

Press Attachment incorporates every feature of a 3-ton bench press, plus adjustable table.

*Sold direct at
Reduced Price*

\$115⁰⁰ F. O. B.
Factory

COMPLETE with all
Attachments as shown



K. R. WILSON
10-14 Lock St., BUFFALO, N. Y., U. S. A.

K. R. Wilson Shop Equipment Sales Co., Los Angeles, California
Export Department: 126 Liberty St., New York City

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

**Made in three
sizes of single
and multiple
spindle models**

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

See our Display
Booth 3-W-18



CLEVELAND
Sept. 30 - Oct. 4

NATIONAL MACHINE TOOL SHOW

Light Accurate Drilling?



10" SUPERIOR
Type: M

Ask us for information about the
SUPERIOR Bench Drill.

[A copy of our complete catalog is ready
for you. May we send it? Now?]

(Sizes from 10" to 36" inclusive)

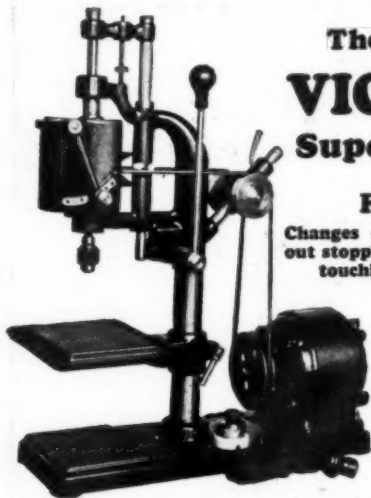
Superior Machine Tool Co.

P. O. Box 376,

SINCE
1902

Kokomo, Ind.

**Now you can increase your production
and drill more accurate holes with**



**The NEW
VICTOR
Super-Drill**

FIVE

**Changes of speed with-
out stopping the drill or
touching a belt!!**

**Cut
Your
Drilling
Costs**

50%

VERSATILITY is the key-note of the VICTOR Bench Super-Drill. The exclusive patented adjustable pulley permits an instant change from 1,600 r. p. m. to 2,200, 3,000, 3,800 or 4,250 r. p. m. without stopping the machine or touching a belt. Think of the time saving.

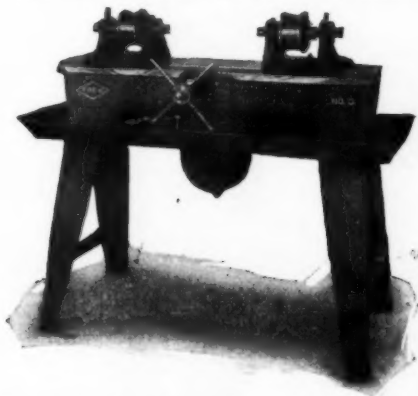
Ten Big Features

(1) Ball bearings in ALL revolving parts and end thrust; (2) Wonder pulley chamber and speed lever to regulate r. p. m.; (3) Standard Jacobs or Ettco chuck; (4) Spindle travel 2"; (5) Drill table absolutely level; (6) Positive spring belt lock; (7) Self-adjusting belt; (8) $\frac{1}{4}$ h. p. motor, a. c. or d. c.; (9) Fully equipped with belt, switch, cord and plug; (10) Portable—weight only 65 lbs.

Write for Complete Description and Low Price

The Thompson Manufacturing Co., Inc.
SOUTH EASTON, MASS.

FREW No. 0 Duplex Horizontal Drill



For Speedy, Accurate Production

THIS machine is designed for simultaneously machining work from opposite directions on the same axis, the work being held in suitable fixtures mounted on the bed. Some of the operations include drilling, counterboring, turning and hollow milling. Facing can be done in practically half the time consumed in single spindle operations, giving an alignment that the accuracy of the machine provides for.

Timken tapered roller bearings or ball bearings; stops which regulate the depth to which tool goes; felt wipers for clearing chips and several methods of providing motion to the heads are some of the outstanding features of the No. 0 Duplex Horizontal Drill.

Write for the Descriptive Bulletin

THE FREW MACHINE CO.
136 West Venango St., PHILADELPHIA, PA.

*We also manufacture: Tapping Machines, Profiling Machines,
Cam Milling Machines, Wood Working and Special Machines.*

THE BULL DOG

$\frac{1}{2}$ "
Heavy
Duty

\$48



Universal
Current

Let's Send You 16 Reasons
why BULL DOG DRILLS
Are the BEST

**Week's
FREE Trial**

*If your dealer can't supply you, we'll
gladly send you a biting BULL DOG
Drill for a week's rough-house test.*

National Electric Products Co.
Dept. H. 148 Baxter St., New York, N. Y.

Stevens Duple Drills

(Ball Bearing Throughout)

**For Double End Horizontal
Drilling, Boring and Reaming**

Three Sizes—Hand Rack Feed

Two Sizes—Power Screw Feed

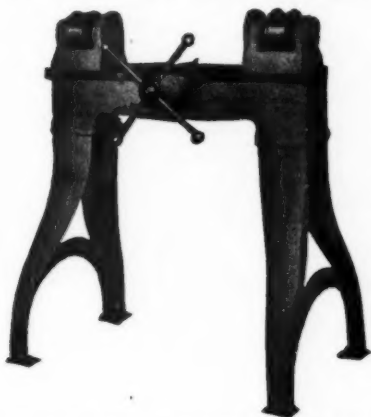


Illustration Shows Small or No. 00 Size

Special Circular Sent on Request

Manufacturers Of

Double end horizontal drills, milling machines and attachments, milling machine vises, dividing heads, index centers, single and multiple spindle, hand screw machines, cutter grinders, screw sloters, hand lathes, collet chucks, oval chucks, rotary tables, hex square milling fixtures, air devices, oil pumps.

WRITE FOR CATALOG

JOHN B. STEVENS INC.

25 Cleveland Place,

New York City

Economy Production On Small Parts Of All Shapes



**Stecher Automatic
Universal Bench Drill**

Wide adjustability of feeds and speeds.

Work is clamped and ejected automatically.

Both hands left free to handle work.

A momentary pressure on the knee control under the bench, and the Stecher Automatic does the rest, leaving both of the operator's hands free to handle the work. It clamps the piece, feeds the drill thru it, and ejects it without a hitch.

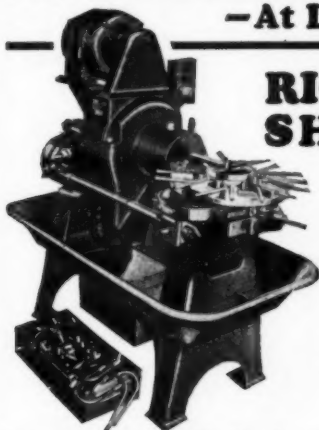
The number of holes that can be drilled in a given time is limited only by the capacity of the drill; the feed and speed of which are easily adjustable to the work in hand.

By merely pulling down the hand lever the Stecher will change from an automatic production tool with a power feed, to a high speed, hand feed, sensitive drill press.

*Send us a sample of your small parts to be drilled,
and we will show you real economy*

The Chas. Stecher Co., 2452 N. Greenview Ave.,
CHICAGO, ILLINOIS

**More Threads—Better Threads
—At Lowest Cost**



RICKERT- SHAFFER

**Automatic
Single
Purpose
Threading
Machine**

Accuracy:— The R-S Machine is practically the only automatic threader which will maintain the accuracy demanded by automobile manufacturers.

Dependability:— Roller bearings are used for spindle sleeve; bronze for other vital bearings; individual motor drive; built-in pump for circulating coolant, with generous sized reservoir for holding same.

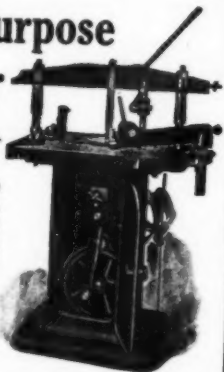
Flexibility:— Can be adapted to almost every job of threading, from the simplest to the most complicated. Combination tools can be supplied so that chamfering, reaming, facing, etc., can be done simultaneously with the threading and with but one chucking.

Reliability:— The R-S Machine is backed by a company whose personnel comprises men who have specialized on thread cutting only for over 35 years. Experience has taught them to produce threading equipment which gives *real service*.

Write for Descriptive Folder and Prices

RICKERT-SHAFFER CO., Erie, Pa.

Davis All-Purpose Keyseater



From the largest, to the
smallest keyseating job,
the DAVIS can be set
up quickly for each
item of a run of
mixed work.

And a
Satisfactory
Job

The Cutter

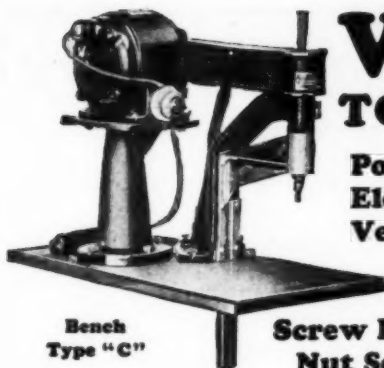
In sizes from
 $\frac{1}{16}$ to 1-inch



Cuts key-
ways in pul-
leys, gearblanks,
bell cranks, crank
handles, etc.; does
slotting & oil grooving.

Two sizes. Write for folder, with table of cutting time.

Davis Keyseater Company
255½ Mill Street, Rochester, N. Y., U. S. A.



**Bench
Type "C"**

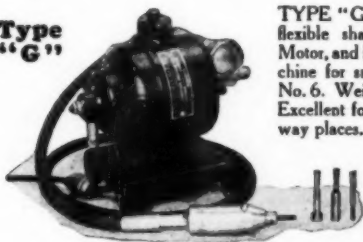
VIM TOOLS

**Portable
Electric
Versatile**

**for
Screw Driving
Nut Setting**

The VIM Bench Machine Type "C" for screw driving and nut setting is operated by a foot pedal, leaving both hands free for adjusting work in hand. It is especially designed for female help. Throat or clearance of work is 6". Screws and nuts can be driven at high speed—2000 R. P. M. bit speed—if desired.

**Type
"G"**



TYPE "G" VIM Tool has flexible shaft with Universal Motor, and is a very handy machine for small screws up to No. 6. Weighs only 12 ounces. Excellent for use in out-of-the-way places.

NOTE: In all types, the bit does not operate until applied to work

*We have other types to suit your conditions.
Send for Bulletins and Prices.*

Vim Electric Tool Company
149 Broadway, New York City

THE KELLERFLEX

A Flexible Shaft Machine of a Hundred Uses.

Made in various sizes and types to meet every requirement.

Speeds from 875 to 10,500 R. P. M.

For Snagging, Burring, Lapping, Buffing, Polishing, Sanding, Drilling, Wire-Brushing, etc.

Non-Heating Shaft, Ball Bearing Hand-piece, Ball Bearing Motor, Universal Swivel.

Complete Line of Accessories

Rotary Files, Sanding
Drums, Emery Wheels,
Wire Brushes, Polishers, etc.

STOCKS AT

Cleveland
Detroit
Chicago
St. Louis
San Francisco

*Write us today for list of users
in your line of manufacture*

**Keller Mechanical
Engineering Corp.**

KME 58A Washington St.,
BROOKLYN, N. Y.

Builders of the Keller Automatic Die Cutting Machines





RESULTS from this new perfected Buffing Wheel are *Amazing!*

CUTS BUFFING
COSTS 50%

ABSOLUTELY SAFE AT ANY SPEED

Patented Device Uses Less Abrasive Cloth

EVERY disadvantage of rag buffing overcome. Operates at 3450 R. P. M., using patent-clipped abrasive cloth strips that can be changed in 30 seconds. Wheel requires no re-conditioning—will never break down—and utilizes every bit of buffing surface. Cuts through rust, corrosion and tool marks to the clean metal surface with a labor and time economy that has caused its complete adoption in shops wherever introduced. Made in 6" and 8" diameter wheels of 2½" face for any arbor size.

C. B. HUNT & SON

643 McKinley Ave., Salem, Ohio

Send for Descriptive Literature

Without obligation, send for illustrated bulletin describing how buffing costs can be cut exactly in half with this new invention in buffing wheels. WRITE TODAY!

Quick-As-Wink

BUFFING WHEEL

Abolish Expensive Hand Finishing with a

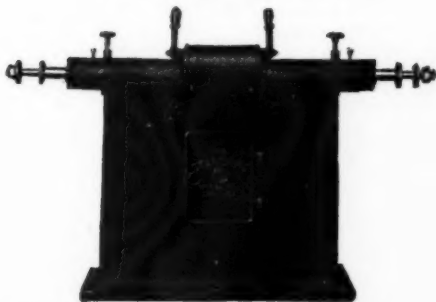


Simplex-A Abrasive Band Grinder

This grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. Details of this and other styles and sizes on request.

WALLS SALES CORP., 96 Warren St., New York

STANDARD
RIGHT
SPEED **TWO MOTOR**
BALL BEARING
BUFFER
AND
POLISHER



Embraces features like

2 40° G. E. motors with independent Push Button Controls.
4 SKF ball bearings. Dayton cog belt drive.
Spindles with hand brake and locking device for changing wheels.

Made in 3, 5 & 7½ H. P. Sizes

Bulletin describing mechanical features and specifications on request.

The Standard Electrical Tool Co.

Established 1912

1938 W. 8th St.,

Cincinnati, Ohio

ABBOTT

Ball Burnishing Barrels

Improved Finish, Volume Finish, Economical Finish are the results obtained with Abbott Ball Burnishing Barrels. A wide range of work is adapted to this economical process, and the benefits of volume production can be had without a large investment in equipment.

When used with Abbott burnishing material, for efficiency, Abbott Barrels will give you large savings in the finishing of your work.

Send samples for an experimental burnish



The Abbott Ball Company

"Originators of Commercial Ball Burnishing"

1043 New Britain Ave., Hartford, Conn.

Type RF-M4 Machine



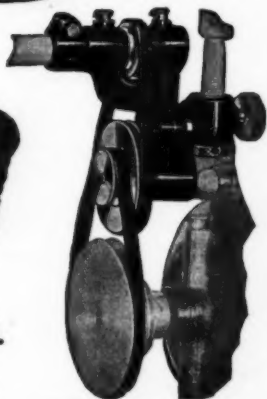
Strand

Capacity— $\frac{1}{4}$ H.P.

For
Rotary Filing
Grinding
And
Polishing

10,000 R. P. M. Attachment
Furnished Extra
when Required. See
Illustration.

Attachments

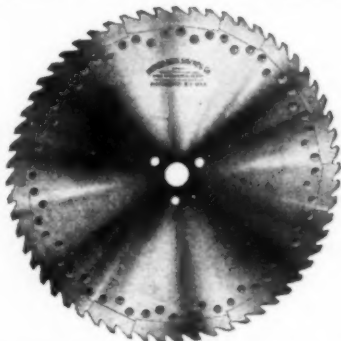


N. A. STRAND & CO.

Manufacturers

5001 No. Lincoln Street
CHICAGO

PATENT APPLIED FOR



Huther Bros. Fine Pitch Type Inserted Tooth Milling Saw

This saw, one of the few fine pitch inserted tooth milling saws on the market, is extremely popular because it is supplied with pitch ranging from $\frac{3}{8}$ " to $\frac{3}{4}$ " and more, which gives a pitch equal to any solid tooth saw. It is unexcelled for cutting small rounds and flats of steel.

Inserts are designed to operate the maximum length of time before resharpening is necessary. It can be replaced when worn out. Body of the saw is made of special alloy steel and is thin, non-breakable, free cutting, strong and flexible.

*Illustrated catalog on request.
No obligation on your part.*

**Huther Bros. Saw Mfg. Co., Inc.
Rochester, N. Y.**

OUR MACHINES
SALVAGE

YOUR HARD TEMPERED
METAL CUTTING

Band Saws
Hack Saws

**MILLING, SLITTING AND
SCREW SLOTTING SAWS**

IT COSTS **2¢** To Sharpen A Hack Saw **5¢** A Band or Circular

MAIL TO US
two saws and we will resharpen them for you
FREE OF CHARGE

REDUCE YOUR SAW PURCHASES

90%

SAVE TIME AND SAVE MONEY

Write for Catalog

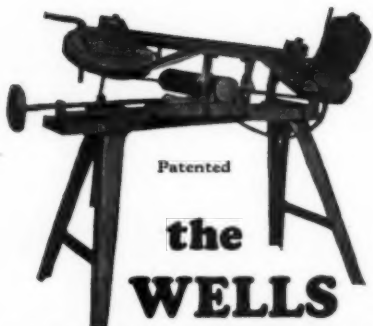
THE WARDWELL MFG. CO.

Makers of automatic machines for sharpening—Hack Saws, Hard
Tempered Band Saws, Milling, Slitting and Screw
Slotting Saws and all Woodworking Saws.

Manufacturers of the largest line of Saw Filers made in U. S. A.

108 Hamilton Ave.,

Cleveland, Ohio



Patented

the **WELLS** metal band saw

Incorporating the advantages of a hack saw with the cutting speed and economies of a band saw.

features:

Self contained and portable if desired—rapid cutting with extreme accuracy—long life blades, low blade expense. A wide range of usefulness—economical operation.

The WELLS SAW cuts soft and hard, ferrous and non-ferrous metals—thick and thin sections—pipe, tubing, strips, etc.

No change of blade or speed—cuts high carbon steel then soft brass rapidly and accurately.

Hundreds of duplicate pieces cut with a variation of less than .004".

Saves stock—width of cut less than $\frac{3}{16}$ "—blade .025" thick rigidly supported in six ball bearings.

Durable construction for hard service—strength without excess weight—ball bearing.

A Saw for Production, Maintenance and General Service

We wish you to have descriptive literature—your name and address please—today? Saws will be placed on trial.

Metal Saw Division

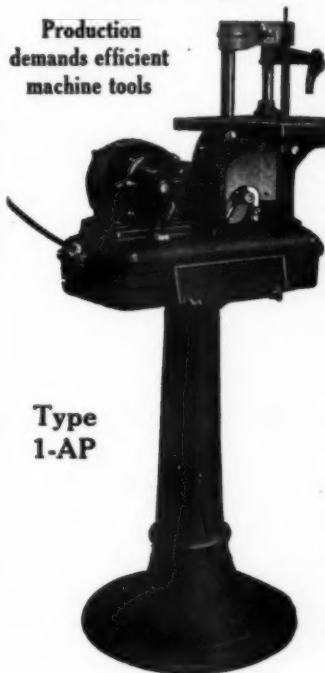
WELLS MANUFACTURING CORP.

Three Rivers, Michigan

Exclusive territory being allotted—representatives and dealers interested, please write.

The J. & B. Filing and Sawing Machine

**Production
demands efficient
machine tools**



**Type
1-AP**

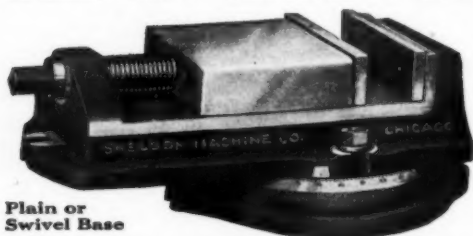
**Any common
ordinary file
can be used by
the J. & B.
up to a 12"
flat mill or
bastard — any
shape.**

**Our patented
file holders take
care of the taper
and ones that
are crooked,
bringing the
working side of
the file to an
absolute vertical
position. Thus
doing away with
the necessity of
keeping a stock
of special or
parallel files on
hand.**

Write for complete details NOW!

**LaPorte Machine & Tool Co., Inc.
LaPorte, Indiana**

SHELDON MILLING MACHINE VISES



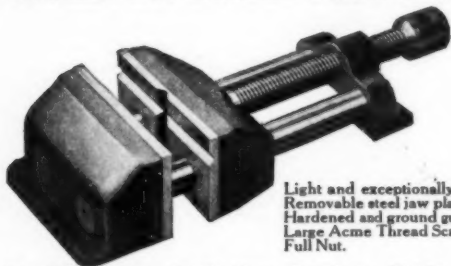
**Plain or
Swivel Base**

The swivel vise is the plain vise with the addition of a circular base, graduated in degrees. It can be removed from the circular base and used as a plain vise if desired.

Specifications and Prices

No.	Width Jaws	Depth Jaws	Jaws Open	Plain Vise		Swivel Vise	
				Weight	Price	Weight	Price
3	3½"	1½"	2½"	15 lbs.	\$16.00	25 lbs.	\$20.00
4	4½"	1¾"	3½"	30 lbs.	\$20.00	45 lbs.	\$24.00
6	6½"	2"	4½"	70 lbs.	\$30.00	90 lbs.	\$40.00
8	8½"	2½"	6½"	160 lbs.	\$45.00	225 lbs.	\$60.00

SHELDON DRILL PRESS VISE



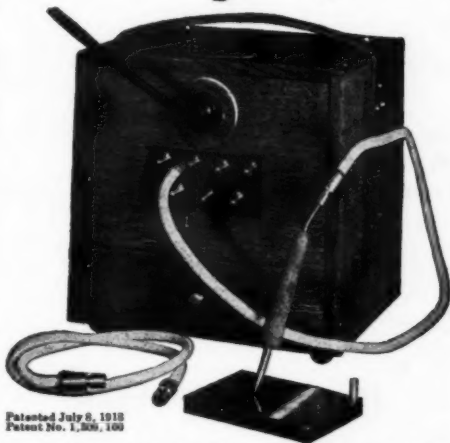
Light and exceptionally strong.
Removable steel jaw plates.
Hardened and ground guide bars.
Large Acme Thread Screw.
Full Nut.

No.	Width of Jaws	Depth of Jaws	Jaws Open	Weight	Price
D-4	4½"	1½"	4"	15 lbs.	\$12.00
D-6	6½"	1¾"	6"	35 lbs.	\$18.00
D-9	9"	2¾"	9"	70 lbs.	\$24.00

SHELDON MACHINE CO. 3250 Cottage Grove Ave.,
CHICAGO, ILLINOIS

Etchograph

Trade Mark



Patented July 8, 1918
Patent No. 1,305, 100

Cut Tool Marking Time 80%

For marking iron, steel or steelite, nothing can equal the ETCHOGRAPH—the original electric marker. Six stages of heat allow six variations in the size of marking, an advantage no other machine can offer. No acids—no fumes—simple to operate—just connect to light socket and write as with a pencil.

Write for descriptive folder, stating power available.

William Brewster Company
50 Church St., New York



**Portable
Foolproof
Durable**

**Used on
A. C. Light
Current**



Marks hardened steel tools, samples of steel metallurgical specimens, special fixtures, etc. permanently and quickly with department and operation identification.

No Fuss or Muss

Demagnetizes large steel blocks, or small steel tools instantly and thoroughly.

*A Time and Labor Saving Combination well
Worth investigating by any Plant Manager.*

Luma Electric Equipment Co.

Main P. O. Box No. 132

Dept. H.

TOLEDO, OHIO

Pedrick Lathe Boring Bars



There are many times when you could profitably use one of your lathes for boring—if you only had the proper appliances at hand.

We can equip you for such work with one of our Lathe Boring Bars. They are made in diameters from 2½" to 6" and various lengths, with a large assortment of cutterheads to meet miscellaneous requirements.

The lathe provides the power, and each bar has a two-change constant feed, hand-controlled or automatic. The bar is rigidly held and is easily taken down and reset without changing the alignment.

Put your boring problems up to us. We have all kinds of new boring machines, from our Standard Portable Cylinder Boring Bar to our new Floor Boring Machines.

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Builders of Portable Cylinder Boring Bars, Crank Pin Turners,
Portable Millers, Pipe Benders, etc.



MACHINE TOOL AND GENERAL
PURPOSE PUMP



VOLUME PUMPS

MOTOR DRIVEN UNITS
 $\frac{1}{2}$ to 5 H. P. 5 to 75 G. P. M.

8 FULFLO delivers coolant in volumes which promote efficiency in cutting tools.

The full, copious flow from the Fulflo is needed to make the best tool, with the best coolant, most effective,

FULFLO does not clog, therefore it always

works. It's the trouble proof pump.

No machines stopped to unclog pump. All the chips you can get into it pass through without harm.

FULFLO has longest life because its only pumping part does not wear.

MANUFACTURED BY

FULFLO SPECIALTIES CO., BLANCHESTER, OHIO

"GUSHER" COOLANT PUMPS



Model T-L-O

Equipped with $\frac{1}{4}$ h. p. motor, has $\frac{3}{4}$ " inlet and is set vertically outside of pan. Delivers 18 gal. 3' high; 13 gal. 6'; 10 gal. 9'; 8 gal. 12'; 3 gal. 20'.

Model T-L is identical in capacity and equipment save that it is immersed in the reservoir and is able to pump over 20' high through $\frac{1}{2}$ " discharge with 10 lb. pressure. Ideal for deep hole drilling or boring.

ARE
Centrifugal
Vertical
Ball Bearing
Perfectly Balanced
Reliable
Easily Installed
Long Lived

"GUSHER" Coolant Pumps are the simplest and most efficient pumps made. They give an instant and easy flow without air bubbles or pulsations. Deep grooved ball bearings, automatic oiling and sufficient clearance for passing chips, grit and abrasive matter through without injury to the mechanism—all these aid in efficient, effortless performance.

Complications Are Avoided
by the elimination in "GUSHER" Pumps of troublesome packing nuts, foot and relief valves, and priming. The deteriorating effects of friction are done away with through the use of ball bearings, and these ball bearings are themselves protected against the lubricant by obtaining perfect hydrostatic balance.

Made in Several Styles
and many sizes, of all desirable capacities, with individual motor or belt drive. "GUSHER" Coolant Pumps are ready to serve you.

*Send for the Complete "GUSHER" Catalog listing
the various models with capacities of
from 12 to 75 gallons per minute*

The Ruthman Machinery Co.
528-534 E. Front St., Cincinnati, Ohio

EXCELSIOR

Circular Angle Bending Machine No. 14

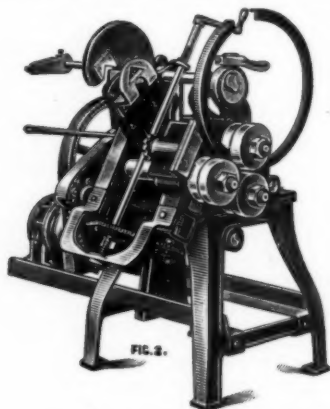


FIG. 2.



Band and Angle Iron
Forming Machine No. 13



Mfgs. of Shearing and Punching Machines,
Automatic Polishing and Buffing Machines.

Excelsior Tool & Machine Co.
East St. Louis, Illinois

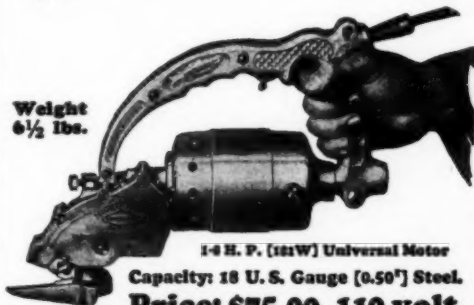
**\$1.00 Saved Per Day Means
\$300. Per Year**

**Follow The Tool Economy of
Over 6000 Unishear Users**

Unishear Cuts Your Cutting Cost in Half

THE MIGHTY MIDGET

**Weight
6½ lbs.**



1-4 H. P. [121W] Universal Motor

Capacity: 18 U. S. Gauge [0.50"] Steel.

Price: \$75.00, 110 volt.

\$78.00, 220 volt.

***A MIDGET in size—a GIANT in power. Built with the
precision of a watch and the ruggedness of a Pile Driver.
Easier to handle than a pair of snips.***

The



Line

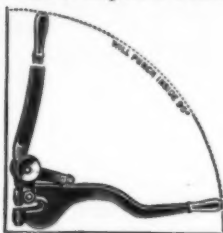
**Includes many other models in heavier machines for cutting sheets up
to ¼" boiler plate, all built on the famous Unishear principle.**

Complete Catalog sent on request.

The UNISHEAR CO., Inc.

Main Office & Factory, New York, N. Y., 270 Lafayette St.

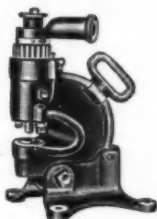
No. 8 Imperial Punch



Operating handles will not become disengaged—Roller bearing—

Capacity $\frac{1}{4}$ " hole through $\frac{1}{4}$ iron.
Made in 3 Sizes: 7, $7\frac{1}{2}$ and 8.
Weight, 16 lbs.

Ball Bearing Punch No. 40



Capacity, $\frac{5}{8}$ " thru $\frac{3}{4}$ " iron.
Weight complete, 87 lbs.

No. 12 Ball Bearing Punch



Capacity $\frac{3}{8}$ " thru $\frac{1}{4}$ ".
Weight 11 lbs.

No. 62 Angle Iron Shear



Capacity $3^{\circ} \times 3^{\circ} \times \frac{1}{4}$ " Angle Iron.
Weight 154 lbs.

No. 2 Shear



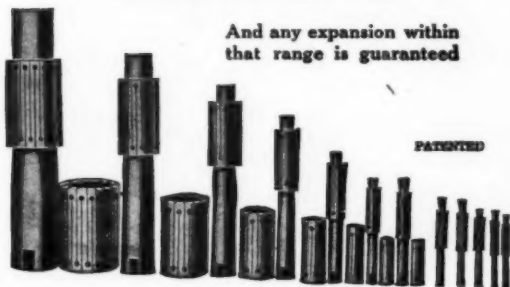
Will shear $\frac{1}{8}$ " Thickness or Lighter
Weight 12 pounds.

Write for Catalog and Price List on Entire Line

WHITNEY METAL TOOL CO.
59 Forbes Street, Rockford, Ill.

JUST 1 SET OF 12 Champion Expanding Mandrels

Will fill by thousandths any inside
diameter from $\frac{1}{2}$ " to $6\frac{1}{2}$ "



So Simple—only two parts.

So Handy—always ready for any job.

So Efficient—dependable for precision accuracy.

They are suitable for all classes of work, large or small, in all kinds of metal. They hold work of any length of bore and do not chatter. They are lighter, more easily handled, and keep truer than common mandrels. They release work easily. And the grinding of all parts after hardening insures the greatest accuracy. The cost is only about one-fifth that of solid arbors of equal range graduated by sixteenths.

Our Catalog also describes

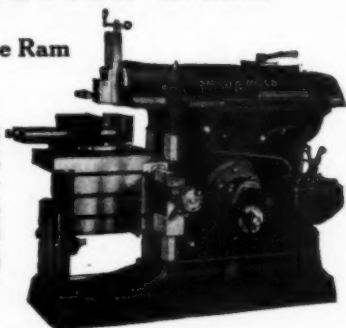
Champion Tool Holders, Champion Emery Wheel Dressers, Machinists' Vises and Clamps, etc., and our large line of practical, hard-to-beat Shop Furniture. Copy upon request.

The Western Tool & Mfg. Co.
SPRINGFIELD, OHIO

SHAPERS

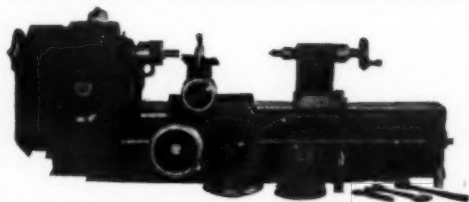
"V" Type Ram

12", 14", 16",
20", 25" Gear
Box single pul-
ley or motor
drive, also 16",
20", 25" B. G.
cone drive with
belt shifter. 32"
B. G. all geared
single pulley or
motor drive, all
sizes crank type.



The Smith & Mills Co., Cincinnati, O., U.S.A.

9" A. V. Carroll Geared Head Lathe



A 9" Geared Head Lathe for manufacturing plants, tool rooms, industrial plants, schools, service stations, homes and jobbing shops.

All steel gears, three changes in head and gear box. $\frac{1}{4}$ H. P. motor direct connected. Cuts right or left hand threads. Furnished also with three step cone belt drive.

Circular on request

A. V. Carroll Machine Tool Co.
Norwood, Cincinnati, Ohio

12 SPINDLE SPEEDS

Chrome Nickel Steel Gears



**C. & J. 15/16-inch
Geared Head
Motor Drive Lathe**

ASK FOR FURTHER DETAILS

**Carroll & Jamieson Machine Tool Co.
Batavia, Ohio**

The NEW HAMILTON



LATHES

are unsurpassed for strength and accuracy. Most convenient heavy duty quick change gear lathes for production and tool room use.

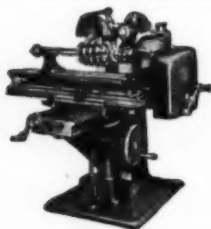
Single and double back gear with cone drive. Geared head with belt and motor drive.

Sizes 14'-18'-20'-22' and 24'

Send for new catalogue bulletin

The Hamilton Tool Co., Hamilton, Ohio

Automatic Toolroom Grinder



for correct sharpening of hobs, cutters, reamers, taps,—straight or spiral fluted—at enormous saving in time, as it indexes automatically from gash to gash.

Write for circular.

GEORGE SCHERR CO., 142 W. Liberty St., NEW YORK

STANDARDIZATION PAYS

Universal Joints

Steel and Bronze



Send for Circular giving specifications and prices on complete line

Boston Gear Works Sales Co.

Norfolk Downs, Quincy, Mass.

BOSTON NEW YORK PHILADELPHIA CLEVELAND CHICAGO

BOSTON GEARS



SPEED REDUCERS

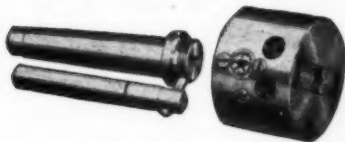
$\frac{1}{8}$ to 2 Horse Power

The Ohio Gear Company

1333 East 179th Street,

Cleveland, Ohio

For Economy in Precision Boring



**Flynn
Micrometer
Off-Set
Boring Heads**

A mechanically-perfect precision head of simple design and few parts.

All parts of heat-treated nickel steel.

This compact head has the least overhang of any head on the market, yielding utmost rigidity, and maximum table travel.

Made in a full range of sizes to fit all standard spindles and arbors. Send for descriptive bulletin and price list.

**J. M. WATERSTON, 426 Woodward Ave.,
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GEARS

In Stock—Immediate Delivery



Gears, speed reducers, sprockets, thrust bearings, flexible couplings, pulleys, etc. A complete line is carried in our Chicago stock. Can also quote on special gears of any kind. Send us your blue prints and inquiries.

Write for Catalog No. 70

CHICAGO STOCK GEAR WORKS

105 South Jefferson Street,

CHICAGO, ILL.

MIKRON



**AUTOMATIC
SMALL PRECISION**

**Gear Hobbers
Gear Cutters
Pinion Hobbers
Thread Millers
Hob Grinders**

Catalogs On Request

Triplex Machine Tool Corp.

50 Church St.,

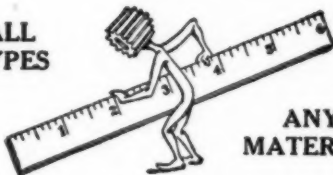
New York City

Mass.



Gears

ALL
TYPES



ANY
MATERIAL

Medium and Small Size Gears

MASSACHUSETTS GEAR & TOOL CO.

36 Nashua St., Woburn, Mass.

To Solve Your Gear Problems



*Information clearly set forth
to answer your gear problems
—your speed reduction prob-
lems, and general power trans-
mission questions. Complete
with prices.*

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Dept. 34, 111 No. Canal St., Chicago

-GEARS-

To Your Specifications

Medium and small sizes our specialty.
All Kinds and Materials.

**QUICK DELIVERY, QUALITY WORK
AND FAIR PRICES.**

Send in Your Inquiries

Taylor Mfg. Co., Inc.
35 Albany St., Cambridge, Mass.

The **IMPROVED E-Z SET BORING TOOL**

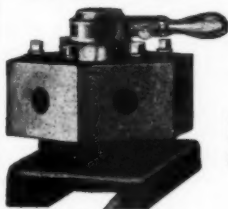


Adaptable to
Milling Machine, Boring Mill, Drill Press or
Screw Machine. *Tool or Production Work.*

Manufactured and sold by

The Co-Operative Machinery Company
7514 Indiana Ave., Cleveland, Ohio

STANDARDIZED LATHE TURRETS



8 Styles
12 Sizes

For any make or
size of Lathe old
or new.

STYLE "O"

Hexagon head, for round shank
tools and bolted on fixtures.

Ask for Circular No. 18

FAY & SCOTT
DEXTER, MAINE

E-Z THREAD DIAL

Thread cutting on engine
lathes made
easy, and at
lower cost.
Made in
four sizes.

Can be easily
attached to
all size lathes.
A reliable
device that
will aid the
operator in
the work of
cutting
threads.

With it
threads can be
cut close up
to shoulders
as easily as
the ordinary
thread.



Eliminates
stopping or re-
versing the lathe.

The many
repeat orders
received
prove it is
satisfactory
after trial.

Can be
shipped
within
two days
after receipt
of order.

Sent on thirty
days' trial.
Send for latest
folder today.

JAMES M. COLVEN, 20 Wolffe Street,
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Arnold Hardness Tester

**A Portable Machine of Rugged Construction
for Reliable and Speedy Testing over a
Wide Range of Work**

Without complicated or delicate mechanism, it is always ready for instant use.

Upkeep costs negligible. The ball is the only part subject to wear, and it can be changed in a fraction of a minute at a cost of less than one cent.

Measures hardness of raw materials in the stock room as well as finished parts, in the hands of the ordinary workman. Furnished with anvils for rounds, flats, irregular shapes and curved work.

*Worth more to you than its moderate cost
Write for more complete information*

H. H. ARNOLD CO., Inc., Rockland, Mass.

Drill From 900 to 1200 Holes per Hour

with the

DETROIT

Semi-Automatic

Five Spindle

DRILLING MACHINE

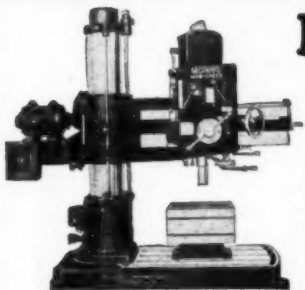


This efficient production machine will turn out the work as fast as the operator can feed it stock. A pull of the lever locks or unlocks the fixtures instantly. Capacity No. 60 to $\frac{3}{8}$ " drills. If you are looking for speed, accuracy, simplicity and low cost operation—try the DETROIT!

Write for Descriptive Circular

Detroit Machine Tool Co.
5061 Woodward Ave., **Detroit, Mich.**

Morris Mor-Speed Radials



**Built in
9-11-13'**

Column Diameters

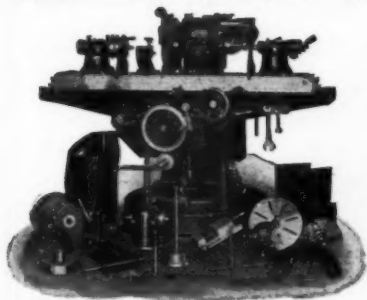
This is the last word in Radial Drill Design. Timken Bearing equipped. All speed and feed changes located in the head. Many other features.

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The Morris Machine Tool Co.
CINCINNATI, OHIO

Represented by The Pratt & Whitney Co. Sales Agencies

SIX Grinders In ONE



**12'x36'
Thompson
Universal
Grinder**

Does every grinding operation required in the machine shop. Lowest cost work for plain, surface, die, cutter, edge and internal grinding. Equipped with the new auxiliary coarse cross feed for surface grinding.

Let us send you the Illustrated Booklet today!

The Thompson Grinder Company
1534 West Main St., Springfield, Ohio

KEYSEATING

24" LONG

That is the length of keyseat for which we made a keyseating miller. The hole is $1\frac{9}{16}$ " diameter, keyseat $\frac{3}{8}$ " x $\frac{3}{16}$ ". How do you do your long length keyseating?

WRITE FOR CATALOG O

National Machine Tool Co.

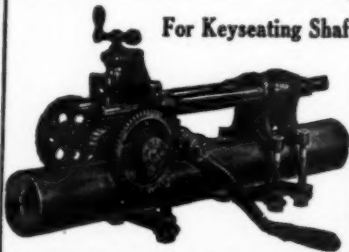
2268 Spring Grove Ave.,

Cincinnati, O.



Invaluable in Emergencies

For Keyseating Shafting in Place



**The BURR
Portable
Keyseater**

Without dismantling shafting or tearing down equipment, it cuts a perfect keyway 12" long, anywhere, in any position, in shafts up to 5" dia.

Have one on hand for your next emergency job. It will save you a vast amount of trouble and expense. Made in seven sizes, hand or power driven.

Over 10,000 in use—order yours today

JOHN T. BURR & SON

422 Kent Ave., Brooklyn, N. Y.

BURKE

Light Milling That Pays

It's poor economy to use heavy milling equipment on small work. Power cost is too high, and the production can never reach the speed necessary to effect profits. The Burke No. 3 and No. 4 Millers are ideal for work of this kind—low-priced, fast and accurate. They return their cost promptly in savings alone, and keep the big machines on work within range.



No. 3,
\$155

ASK US FOR THE FULL DETAILS

The Burke Machine Tool Co.
297 E. 16th St., Conneaut, Ohio, U. S. A.



ANNOUNCING

The New

“Buffalo”

16-Inch DRILLS

Floor or Bench Type

Will Drill $\frac{1}{8}$ "— $\frac{3}{4}$ " Holes in Cast Iron

These new 16-inch sensitive motor driven drills were developed to meet modern production needs.

SKF Ball Bearings are used throughout, assuring smooth, trouble-free performance.

The head has a travel of $8\frac{1}{2}$ " inches while the spindle travel is unusually long, 7 inches.

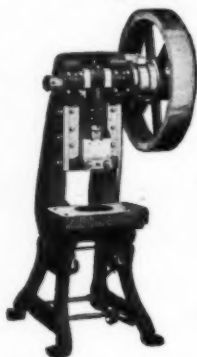
Circular 2677 gives complete particulars

Buffalo Forge Co.

161 Mortimer St., Buffalo, N. Y.

In Canada: Canadian Blower & Forge Co.,
Ltd., Kitchener, Ont.

The Spirit Of the Times



is reflected in the speed and stamina of Rockford High Duty Punch Presses.

They are built to produce and maintain High Production—and they do it.

Wide range of sizes and types.

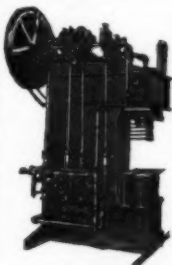
Write today for new catalog

Rockford Iron Works
Rockford, Ill.

Hydraulic Pressure To Meet Your Specific Need

No matter what your need—whether for straightening, drifting, forming, broaching, etc., Lourie Presses can serve you in any capacity.

Perhaps you are encountering difficulty in forcing that can be accomplished more soundly and economically by hydraulic pressure. New uses for the Lourie Press are being found daily!



Steel Plate Construction

Our Engineering Dep't. welcomes the opportunity to suggest methods of applying hydraulic pressure. Ask for Bulletins 1301-2.

LOURIE MFG. CO., 565 W. Washington
Blvd., CHICAGO



Atlas Arbor Presses

For All Forcing Operations

Illustration shows our No. 55 Power Drive Press, which is adaptable for fast production work and capable of supplying ten tons pressure.

*Write for our Bulletin—
showing 30 different sizes*

Atlas Press Co.

*Department B,
Kalamazoo, Michigan*

Fall River Screw Press



Here is a new screw press which is large enough and strong enough to take care of every job that comes into the average shop. It is built of high grade steel throughout, with special attention given to those parts subject to the hardest strain. 42 inches wide and table is 8 inches. Capable of exerting over 65 tons pressure.

Write for further information

Fall River Grinding & Machine Co.

JESSE ST.,

FALL RIVER, MASS.

NEVER LEAKS

SWIVELS FREELY

UNBREAKABLE

FOR ANY HOSE
CONNECTION



Guaranteed
Quick-As-Wink
HOSE COUPLINGS

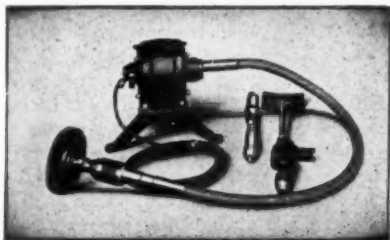
Send for Free Sample

Made of famous Tobin Bronze, Quick-As-Wink Hose Couplings resist the most severe usage—are not affected by mud, snow or ice—connect and disconnect by workman in 30 seconds but never accidentally. Guaranteed one year. Sizes $\frac{1}{2}$ " to 4". *Get descriptive literature and prices.*

C. B. HUNT & SON, Salem, Ohio
643 McKinley Avenue

The Whirlwind Buffer and Grinder

Will cut the cost on any unhandy
grinding or polishing job



Send for our latest bulletin

Stow Flexible Shaft Co.

3023-25 Brandywine St.,

Philadelphia, Pa.

The Best Since 1876

THE KELLERFLEX

A Flexible Shaft Machine of a Hundred Uses.



Built in sizes to meet all requirements.

Speeds up to 10,500.

For snagging, burring, tapping, buffing,
polishing, sanding, drilling,
wire-brushing, etc.

COMPLETE LINE OF ACCESSORIES

Rotary files, emery wheels, sanding
drums, wire brushes, etc.

Tell us your problem.

*Builders of the
Keller Automatic Die Cutting Machine.*

Keller Mech. Engineering Corp., **KME** 58A Washington St.
BROOKLYN, N. Y.

Mall "Jack of All Trades"

and

Masters Them Too



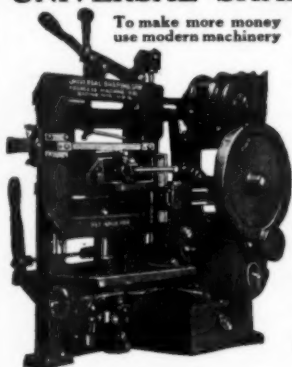
Cleaning
Scraping
Filing
Sanding
Polishing
Grinding
Sawing
Finishing

**Mall Tools are
powerful tools**

Write for Catalog

Mall Tool Company, 7730 So. Chicago Ave.,
Chicago, Illinois

—PEERLESS— UNIVERSAL SHAPING SAW



To make more money
use modern machinery

**Different Principles
Greater Efficiency
Give The Most Of—
Speed
Accuracy
Blade Economy**

SIZES:

6"x6" -- 9"x9" -- 13"x13"

PEERLESS

HIGH SPEED HACK-SAWS

6"x6" 9"x9" 13"x16"

Sturdy--Efficient--Reliable

Peerless Machine Co.

1218 Sixteenth St.

Racine, Wisconsin

Write for Details

No Straining or Stretching

with the



HANDIEST RACKS

They're just the RIGHT Size!

The *Handiest Racks* are made in just one size—exactly right for the average height man to safely work to. It's "man-size"—your lathe or screw machine operator does not have to stretch or strain himself reaching for stock. *The Handiest Racks* keep various sizes of pipe, shafting and bar stock neatly piled and assorted either beside the machine or in some handy storage place—making it easily "get-at-able." Try them in your shop—you'll be glad you did.

Send for a Set Today. We ship on FREE TRIAL

Wm. S. Yohe Supply Co.
503 Mahoning Road, N. E., Canton, Ohio



**Hack
Saws**

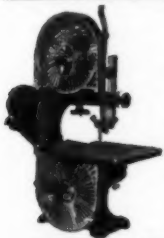
VICTOR High Speed Steel Hack Saw Blades

These new VICTOR HIGH SPEED STEEL HACK SAW BLADES so completely answer every need and cutting requirement that their performance is considered one of the greatest achievements in hack saw history.

The low cost of these blades is easily determined by the great number of cuttings of each blade.

A trial will convince you

VICTOR SAW WORKS, Inc., Middletown, N. Y.



For Strenuous Work

Some users of Racine Duplex Band Saws cut thousands of pieces in daily production with these sturdy tools. All Racine Machines are built to meet exacting requirements. They are made in different types for every kind of metal cutting job.

Write for valuable metal cutting chart and other information on this time and money saving equipment. No cost or obligation.

Racine Tool & Machine Co.
1429 Junction Ave., Racine, Wis.

RACINE

**HIGH-SPEED
METAL CUTTING MACHINES**

Analysis of Circulation of **HITCHCOCK'S MACHINE TOOL BLUE BOOK**

By Dun and Bradstreet Ratings

(Corrected to August 1st, 1929)

To domestic concerns, and superintendents, works managers, production engineers, etc., in such concerns rated at—

Exceeding \$1,000,000.....	1,883
\$500,000 to \$1,000,000.....	1,426
\$300,000 to \$ 500,000.....	1,348
\$200,000 to \$ 300,000.....	1,212
\$125,000 to \$ 200,000.....	1,675
\$ 75,000 to \$ 125,000.....	1,786
\$ 50,000 to \$ 75,000.....	1,507
\$ 20,000 to \$ 50,000.....	3,167
\$ 10,000 to \$ 20,000.....	2,084
\$ 5,000 to \$ 10,000.....	1,777

TOTAL to Private Concerns of over \$5,000.. 17,865

Steam and Street Railway Mechanical and Purchasing Officials, Government and Municipal Plants, Technical Schools, Selected Foreign Dealers and Users, Etc.,..... 2,927

TOTAL to Buyers of Known Responsibility.. 20,792

*Concerns quoted in Dun or Bradstreet, but without Capital Rating..... 2,652

Concerns not yet in either Dun or Bradstreet, which includes new industries..... 1,514

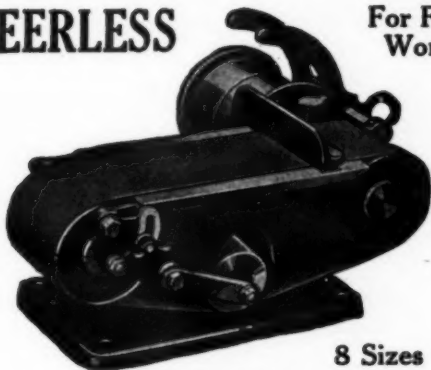
Concerns rated \$3,000 to \$5,000..... 620

TOTAL CIRCULATION 25,578

*This group includes a considerable number of large concerns, and some small ones of high credit, whose capital rating is not given by either of the commercial agencies.

PEERLESS

For Flat
Work



8 Sizes

Write for Circular

PEERLESS SURFACING MACHINE CO., Inc.
TROY, N. Y.

USE "D. & W." DEMAGNETIZERS!



Of unique construction, they are simple, dependable

A rigid continuous U-shaped core, made of the highest grade laminated electrical steel, is energized by two

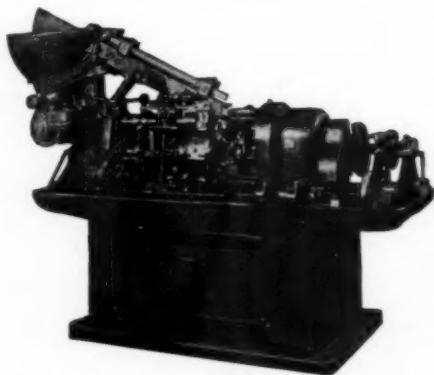
stationary coils, thru which alternating current is passed. Construction is similar for d. c. machine, and in addition containing a small converter.



Have you any special problems in connection with the use of Magnetic Chucks? We will gladly investigate and report on same, or design a special chuck for your particular needs. **Write us today.**

J. & H. Electric Co., 200 Richmond St.,
Providence, R. I.

Combined Automatic Pointing and Threading Machines

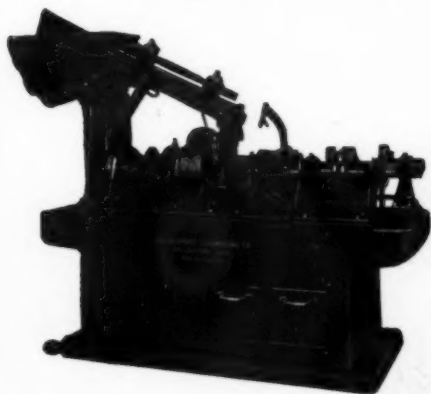


For Bolts and Cap Screws
Capacity— $\frac{3}{16}$ "x1" Diameter
1" to 6" Long

Write for Full Information

THE ECONOMY ENGINEERING

Automatic Shaving Machines



Shaves top and underneath
head of Cap Screws

Capacity $\frac{1}{4}$ " x $\frac{3}{4}$ " Diameter
 $\frac{3}{4}$ " to $5\frac{1}{2}$ " Long

Information

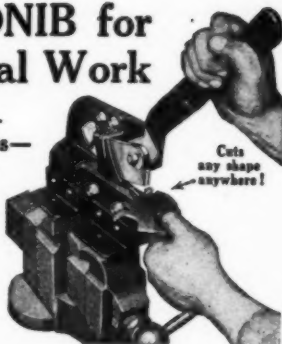
COMPANY, - Willoughby, Ohio

The HANDNIB for Experimental Work

Cut out templates—
Cut out trial blanks—
Nibble sheet metal
into any irregular
shape.

The Handnib will
do the above in *one-
tenth* the usual time.

Write for a Folder!



National Machine Tool Co.
1536B Clark St., Racine, Wis.

ARMSTRONG TRADE MARK REGISTERED U.S. PAT. OFFICE **Drop Forged WRENCHES**



Forged from selected steel that gives both stiffness and strength. Improved designs—stronger, balanced. 29 types. All practical sizes. All standard openings accurately milled with just enough clearance. Blanks in stock for rush orders with special openings. Singly or in matched sets. *Write for Catalog W-27.*

ARMSTRONG BROS. TOOL CO.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.





Drilling Cost Cut 76%

A MIDWEST lamp manufacturer, using carbon drills, was confronted with the problem of reducing hole production cost and speeding up hole production.

On a certain job, run through in 10,000-piece lots, carbon drills averaged 780 holes per grind, 24 grinds per drill, and total drill life of 20,000 holes—with direct drill cost of 36¢ per 10,000 piece lot.

CLE-Forge HIGH SPEED DRILLS

TRADE MARK REG. U.S. PAT. OFF.

were then tried. They averaged 10,000 holes per grind, 19 grinds, and total drill life of 200,000 holes. Although costing, per drill, more than twice as much as the carbon drills, Cle-Forge showed a direct drill cost of only 8½¢ per 10,000 piece lot—demonstrating a net cost reduction of over 76%, while materially speeding up production. The net annual saving was \$381.06—or more than 2½ times the actual cost of the Cle-Forge Drills used!

This complete story is told
in Digest No. 59. Shall
we send you a copy—
without obligation?



TRADE MARK
REGISTERED



The **CLEVELAND**
CLEVELAND

TRADE MARK REG. U.S. PAT. OFF. AND FOREIGN COUNTRIES

**TWIST DRILL
COMPANY
CLEVELAND
NEW YORK CHICAGO LONDON
SAN FRANCISCO**

Before any Cut

LeBlond Grinders=
Sharp Cutters

Sharp Cutters=
Maximum Production

Maximum Production=
Profit

The Universal Cutter Grinder
that Meets the Demands of
the Modern Tool Room.

THE R. K. LeBLOND MACHINE TOOL CO.
CINCINNATI, OHIO

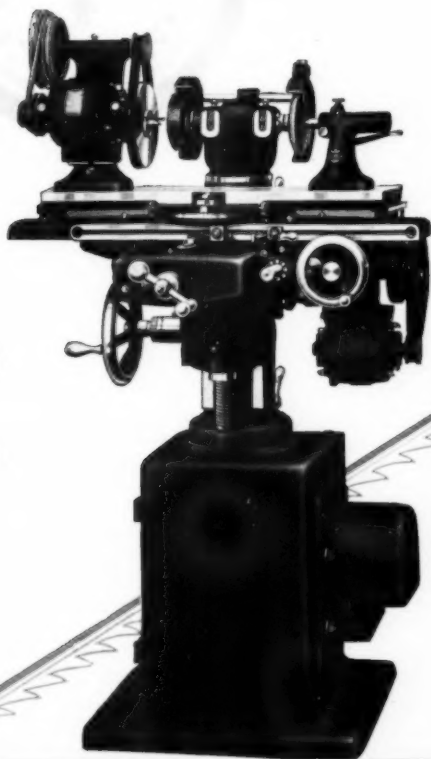
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profits

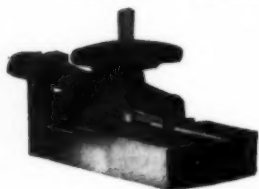
er
of

. CO.



The K-O Vise Clamp

New—Practical—Tested



Has no equal for variety of purposes, or uses, in the tool room or machine shop.

**Quick Acting
Simple—Accurate**

The Indispensable Tool

The K-O Vise-Clamp is a combination of a Drill Press Vise, Toolmakers' Clamps, V Blocks, Drill Jig and Angle Plate. Illustration shows small round clamped in "V" groove, for drilling through its diameter. The round, when clamped in the groove "stays put." With the ordinary vise a parallel would be necessary—with the K-O none is required. Two sizes for fast, accurate work of great variety, in all positions.

The K-O Adjustable U-Clamp

The Old Style U-Clamp with **NEW** Adjustable Feature. Quick—Positive—Dependable—Guaranteed. Costs no more.

No Blocking Required



Rear of clamp is easily and quickly adjusted to level of work to be clamped by merely turning the ratchet, one way or the other. Step elevations graduated by 32nds of an inch.

Our Vises and Clamps are made in various sizes—Send for Catalog.

Cayo Manufacturing Co.

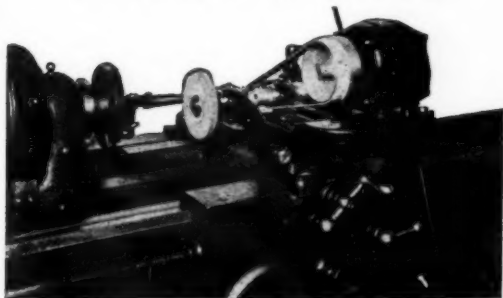
Benton Harbor, Mich.

In addition to the above, we manufacture Adjustable Shop Stools and Adjustable Shop Stands to hold parts to be run through Punch Presses.

"ATLANTIC"

Precision Lathe Grinder

**For External, Internal and Surface Grinding
on any Lathe from 14-inch swing up**



"Not a Cent for Repairs"

"We find your machine far superior to other lathe grinders. The fact that it has not cost us a single cent for repairs, or has not needed any attention in the three years we have used it, also speaks well for your machine." (Name on request).

This statement, taken from a letter of a prominent manufacturer, shows that the the "Atlantic's" claim of durability and economical operation "stands up" under actual working conditions. These characteristics, plus its accuracy, absence of chatter marks and remarkable versatility, makes the "Atlantic" your best buy. And its cost is *one-third less* than its nearest competitor.

THREE DAYS' TRIAL—NO EXPENSE TO YOU

*Write for Illustrated Leaflet on
"WHAT OTHERS SAY"*

The Kern Electric & Eng. Co., Inc.
1092 So. Orange St., Newark, N. J.

Test This New PRODUCTION CHAIR at Our Risk



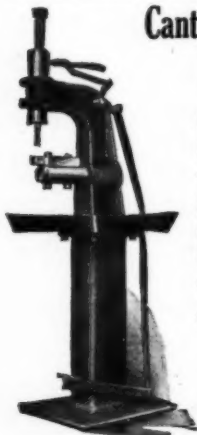
Our product is sold strictly on its merits. You cannot appreciate its splendid usefulness and low cost until you see it, use it, compare it under your own actual service conditions. We do not ask that you buy our strong, sturdy Bridgebilt chairs. Just try one for strength, comfort and the same general wear and tear uses you would expect of any product. We stand or fall on your decision. Pin your business card to this coupon TODAY. Mark it and mail direct. We ship sample at once. No obligation to buy. Do it NOW.

The Chicago Wire Chair Co.
613 No. LaSalle St., Chicago, Ill.
Eastern Office: 119 E. 27th St., New York City

FREE TRIAL

- ☐ Let me try a Production Chair
Graduated heights from 18-30"
- ☐ Let me try a Bridgebilt stool
Height...in. (18-24) (24-30)
- ☐ Send me Free Bridgebilt Catalog

Canton Pedestal and Bench Pneumatic Riveters



Require no adjustment for rivets of different lengths.

The advancing type inner cylinder provides ample room for placing the work between the dies.

The smaller sizes have a speed of 5000 blows per minute.

*We also build a complete line of
Chipping and Calking Hammers*

Canton Pneumatic Co.

1720-9th St., S. W., Canton, Ohio

Vanderbeek Universal Joints



—represent the practical refinements of 25 years experience in manufacturing Universal Joints. All parts are generous sized, fully protected against dirt, and are practically self-oiling. Exceptionally strong, they transmit full power up to 70°.

Vanderbeek Joints are in daily use on thousands of machines.

Write today for our Descriptive Catalog.

American Tool Works, Inc.
Hartford, Conn., U. S. A.



A RIVETING PROBLEM? LET GRANT SOLVE IT!



Many an awkward riveting job has had to be done by hand until they investigated the

GRANT ROTARY RIVET SPINNER

It is especially adapted to handling pieces of awkward shape and to work in hard-to-get-at places. And besides

It Is Noiseless

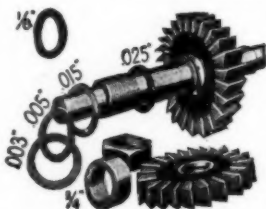
All work is uniform, as tight or loose as desired, with highly polished heads; its speed is a rivet per second, and it may be operated by low cost help.

Write for Catalog and send us sample of your most difficult work for riveting

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

Steel Spacing Washers—

Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



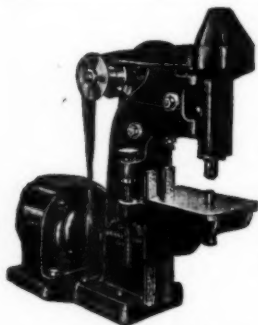
Stock sizes for arbors of following diameters: $\frac{3}{16}$, $\frac{1}{8}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$, $1\frac{3}{4}$, $1\frac{7}{8}$, 2, $2\frac{1}{4}$, $2\frac{1}{2}$, 3, $3\frac{1}{2}$ and 4 in. and larger.

Stock thicknesses: .002, .003, .004, .005, .006, .007, .008, .010, .012, .015, .020, .025, .032, .047, .063, .093 and .125 inch.

Other thicknesses up to 3.000* made to order, with keyways if so ordered.

Ask us to send samples; you'll like them

Detroit Stamping Company
3443 West Fort St., Detroit, Mich.



For Your Small RIVETING

The Linley Rotary RIVET SPINNER

Covers a wide field of riveting.

Simple in design but—

Rigid and powerful.

Guaranteed to give satisfaction.

Get the full details before buying a riveter

**WE ALSO
MANUFACTURE**

**EQUIPMENT FOR ROTARY
RIVET SPINNING MACHINES**

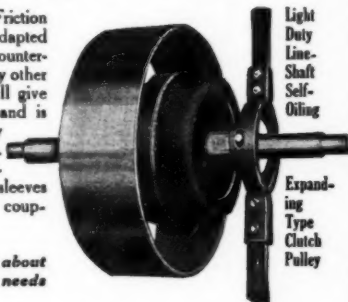
SEND FOR DESCRIPTIVE FOLDER

Linley Brothers Co., 579 Fairfield Ave., Bridgeport, Conn.

Edgemont Type B Friction Clutch

The Type B Friction Clutch is well adapted for line-shaft, counter-shaft and many other drives. It will give good service and is simple and easy to operate. Made in pulleys, extended sleeves and cut-off couplings.

Write us now about your clutch needs



Light
Duty
Line-
Shaft
Self-
Oiling

Expanding
Type
Clutch
Pulley

Edgemont Machine Co., Inc., DAYTON OHIO

Something to Move? —



Heavy? Awkward?
Hard to Get At?
That's when you need—and
appreciate—the

**"CANTON" Portable
Crane, Hoist and Truck**

It will reach into otherwise inaccessible places, pick up any bulky, unwieldy object weighing up to 6000 lbs. with ease, and transport it from one end of the shop to the other. One man can operate it—no need to call 6 to 10 men from their work to risk torn ligaments. Safety Friction Load Brake can be added to new or old 'Cantons' at small extra cost.

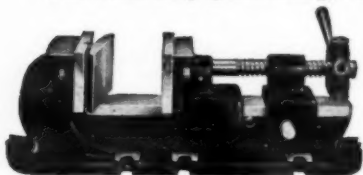
*The several sizes are
shown in Booklet E-8*

CANTON FOUNDRY & MACHINE CO., Canton, Ohio

New York Office: 101 West 31st Street

Gem Drill Press Vise

With Automatic, Quick-Acting, Powerful Grip

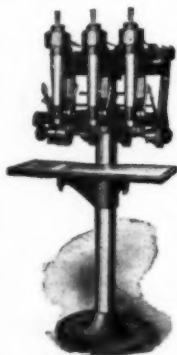


***Holds
Irregular
Pieces
Firmly***

The jaws are made of steel, hardened and ground, with horizontal and vertical "V" grooves. The independent swivel jaw holds taper and irregular work with a bull-dog grip. Its quick action, powerful grip and adaptability make it *the most efficient vise on the market*. Made in three sizes. Write today for folder, picturing its use in drilling and milling operations.

J. E. Martin Tool & Die Works, 528 W. State St.
Springfield, O.

Sigourney Sensitive Drills



**Plain or Ball Bearing
Belt or Motor Drive**

Sigourney Sensitive Drills are ***quality products***, extremely sensitive, accurate and durable, with all parts interchangeable.

The illustration shows a Sigourney ball bearing, high speed drill press, made with one to four spindles, which operates up to 5000 R. P. M. The ball bearings are self-aligning, in double row.

Write for circulars and prices

Sigourney Tool Co.
Hartford, Conn., U. S. A.



A Real Economy In Drilling Costs

Transform your single spindle drill into an accurate multiple driller.

Utilizing the feeds and speeds that you use for drilling one hole, you can drill two to six holes.

A special double adjustment permits any pattern of multiple drilling. We can design special heads with adjustable or fixed spindles.

If you send us a layout of your work we will show you how to cut your costs

The United States Drill Head Co., 1952 W. Sixth St., CINCINNATI, O.

Michigan Agents—National Sales Engineering Corp., Detroit, Mich.

The U. S.—

A 14" Sensitive Floor Drill

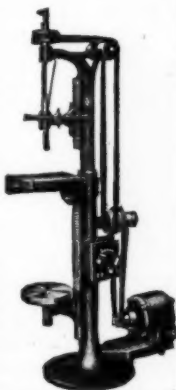
Designed in a machine tool shop to meet the need for a drill with a capacity up to $\frac{1}{2}$ " that will turn out accurate, rapid work at the least cost.

Price with motor, switch and belts - **\$115**

Or with Counter-shaft for Belt Drive **\$70**

Three speeds; spindle ground to size with ball thrust bearing, counterbalanced by weight inside column; vertical adjustment to head; tables adjustable to any type of work. Write for folder, or better still send us your order.

The U. S. Machine Tool Co.
1952 W. 6th St., Cincinnati, Ohio



ACME DOWEL PINS



Standard hardened and ground to within .0002" over listed sizes. Also carried oversize .001" for use in repair work, etc. Ask for Bulletin No. 551.

ACME DRILL BUSHINGS

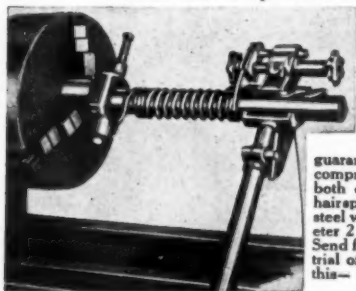
Bulletin No. 501 describes and illustrates the various types and standard sizes of ACME Drill Bushings. Special sizes made to your order.



Bulletins and special low prices sent upon request.

ACME INDUSTRIAL CO.
419 Carpenter St., Chicago, Ill.

Wind Your Own Springs With this *Superior Tool*



ON LATHE OR VISE

The **Right Springs** for any job can be wound **perfect and uniform**. Pitch adjusting screw with **graduations** guarantees correct tension or compression—closes pitch on both ends. **Capacity**—hairspring to 1/4-in. tempered steel wire, maximum diameter 2 in. Rated concerns: Send for our special 5 days' trial offer and low price on this—

Handy Long Life Utility Tool
Superior Spring Winding Tool Co.
776 Third Street, Milwaukee, Wis.

Anderson Improved Balancing Ways

Ever-Ready—Sensitive—Reliable



They need no adjustment, no centering, and no special leveling. The rotating discs are made of chilled iron, run in specially designed ball bearings and are extremely sensitive.

Each of the six sizes has no equal for balancing anything that revolves with its dimensions.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards..	20"	30"	30"	66"	88"	20"
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight	45	90	150	350	650	
Code	Bend	Bid	Bis	Bib	Ben	

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.

1915 Kishwaukee St., Rockford, Ill.

A Real Time Saver—

**Springfield
Straightening
Press—**



**Made in
3 Sizes**

**Invaluable in
Tool Room and
Shop; also for
Straightening
Cranks, Cam
Shafts, etc.**

The arrangement of the *Springfield Straightening Press* is the acme of convenience,

Any length work, rough, or finished, within the range of its centers may be tested and straightened without unnecessary walking from lathe to press. Springfield is accurate and speedy. Its service in aligning sprung tools is unexcelled. A Springfield quality product.

Our folder will illustrate its many uses

The Springfield Machine Tool Company

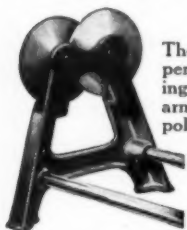
633 West Southern Avenue,

SPRINGFIELD, OHIO

We also manufacture Engine Lathes and Shapers

Twentieth Century Balancing Tool

Always on the level



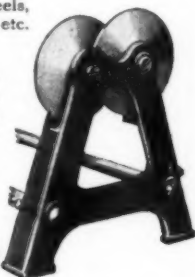
The most practical, sensitive and inexpensive device manufactured for balancing pulleys, cones, armatures, fly wheels, polishing wheels, etc.

Will set anywhere and is easily portable. In sizes

up to 24,000 pounds capacity.

Ask for the Bulletin

Sundstrand Machine Tool Co.
Rockford, Ill.



"STANDARD" Dial Indicator

Simple—Sturdy

The few parts, simple construction and sturdy build enable the "Standard" Dial Indicator to excel in service. The finest gear and pinions made by a new process, insure accuracy; large figures, distinct graduation, no shadows, insure easy reading; dirt and moisture proof case insures long life. 2" and 2½" face.

Send for Catalog showing entire "Standard" Line
STANDARD GAGE COMPANY, INC.
Poughkeepsie, New York

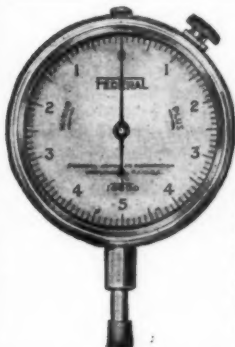


Upright Dial Gauges
with mountings for
testing parts speedily.

B. C. Ames Co.
Waltham, Mass.
902 Stephenson Bldg., Detroit

Ames Gauges for accuracy

Micrometer Dial Gauges
in a wide variety of dial
markings to fit all re-
quirements.



FEDERAL Dial Indicator MODEL "30"

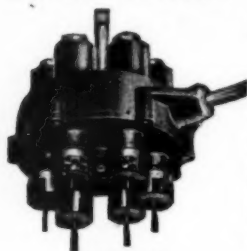
This Model is particularly adapted for extremely close work as it is graduated so that .0001" reads like .001" on the ordinary indicator. *A Few Federal Exclusive Features.* Jewel bearings, solid bronze alloy die cast case; with hyllo finish, stem cast integral with case eliminating absolutely all solder, stainless steel bushings in stem. The rack as well as all exposed parts are chromium plated assuring years of dependable service.

Send for our complete catalogue showing
over 45 different types of gauges.

Federal Products Corporation
PROVIDENCE, R. I.

Western Branch: 7338 Woodward Ave., Detroit, Mich.

DORMAN Multiple Spindle Drill Heads and Tappers



DORMAN
Multiple Spindle Tappers
Automatic Reverse

Keep Your Drilling & Tapping Up-To-Date

Dorman Multiple Spindle Tools have been in extensive use for 15 years. One of the largest manufacturing concerns in New Jersey, of world renown, using Dorman Tappers and Drill Heads for the last eight years has this to say of Dorman tools: "They produce and stand the gaff." All fixed centers.

*Send in Your Blue Prints
for Quotations*

JOHN H. DORMAN

5148-52 Hudson Blvd., West,

West New York, N. J.

IF YOU TAP HOLES—



Why not have the feel of the tap right at your finger tips? A tap is a delicate tool. The Ettco Tapping Attachment taps delicately—with increased speed—That's the answer.

THE ETTCO Tapping Attachment

is simple—nothing to adjust—if the tap sticks or hits bottom the Ettco slips—the same action coming out. No clash of a positive clutch—just the smooth action of the patented leather lined cone clutch.

Sensitive—speedy—satisfactory.

No. 1—Tapping Attachment	$\frac{3}{8}$ " in steel, $\frac{1}{4}$ " in C. L.	\$35.00
No. 2—Tapping Attachment	$\frac{1}{2}$ " in steel, $\frac{3}{8}$ " in C. L.	50.00
No. 3—Tapping Attachment	$\frac{1}{2}$ " in steel, $\frac{1}{2}$ " in C. L.	80.00

Eastern Tube & Tool Co., Inc., 680 Johnson Ave., BROOKLYN, N. Y.

"PROCUNIER"



SAFETY TAPPING ATTACHMENT with the "Procunier" Safety Friction and "Double-Jaw" tap holder gives *greater accuracy less tap breakage*, and more tapped holes to the dollar.

**All Hardened Gears
Special Hardened and Treated Clutches
Balanced Reversing Mechanism**

With the "Procunier" Safety Friction Device blind holes can be tapped just as easily as through holes, and without danger of breakage.

Don't hesitate to ask for a free trial.

Catalogue 102-B gives complete details of "PROCUNIER" Tapping Devices, Quick Change Chucks, Stud Setters and Bench Tapping Machines.

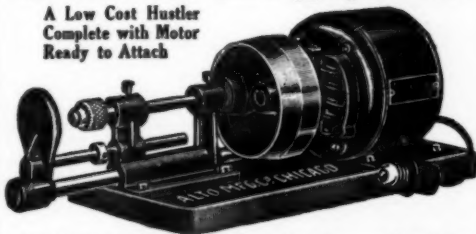
Procunier Safety Chuck Co.

14 So. Clinton St.,

CHICAGO, ILL.

No.1 ALTO Motor Driven Tapping Machine

**A Low Cost Hustler
Complete with Motor
Ready to Attach**

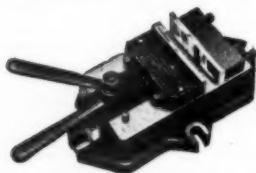


Its Main Points are—(1), High speed, with reverse three times as fast; (2), compact and complete, ready to attach to light socket; (3), so simple in construction that we can sell this high-grade tapper at a low price. Capacity $\frac{3}{16}$ " in brass, $\frac{3}{32}$ " in steel. We also make larger motor driven Tapping Machines.

Write for descriptive circular and moderate price

**The Alto Mfg. Co., 1647-51 Wolfram St.
Chicago, Ill.**

The Most POWERFUL Vise Made Hartford Milling Vise



Jaw width 5"
Jaw depth 1¼"
Maximum opening 3½"
Weight 40 lbs.

Also made in the swivel-jaw type with hard or soft jaws, maximum opening 2¼".

The "Hartford" is designed to give the utmost in service. A lower cam-faced handle gives required quick opening and return—while a top eccentric lever-handle furnishes tremendous binding power. You can rely on "Hartford" to survive the hardest usage. Its steel parts are drop forged, hardened and ground—its base is made of special iron.

Send for descriptive catalog illustrating its usefulness

We also Build Machinery on a Contract Basis and Design and Develop
Special Automatic Machinery—Gears Cut to Order.

Hartford Special Machinery Co., 285 Homestead Ave.,
HARTFORD, CONN.



Punch MORE Holes with T. H. L. PUNCHES

T. H. L. Punches will produce more than the average number of holes, for they are made of the highest grade, dependable tool steel and are hardened and tempered—*right*. Our experience of nearly 40 years in making of punches assures you satisfactory, continuous and profitable production.

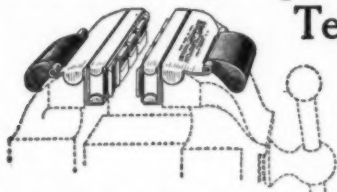
A Trial Order

will convince you. We carry large stocks of regular sizes for immediate delivery—special sizes quickly made.

Write for a copy of our Catalog

T. H. Lewthwaite Machine Co.
311 East 47th St., (Est. 1890) New York City

P. & K. Vise-Grips save Time, Temper and Money



Hold any shape—round, square, curved, triangular, tapered—without abnormal pressure. No marring or jamming. No springs or complicated parts.

Sensitive as Human Hands — with a Bull Dog Grip

P. & K. Vise Grips, consist of a pair of detachable compensating jaws that can be used on any vise to hold any shape. On or off in a second.

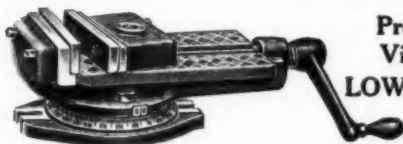
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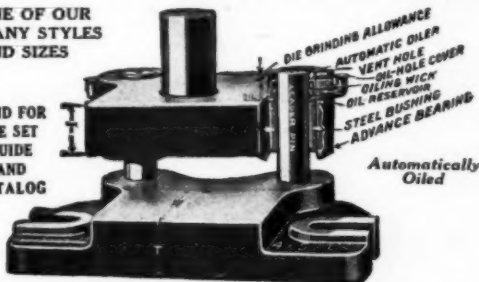
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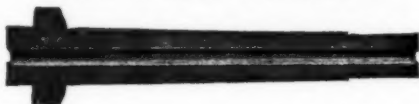


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 The Co-Operative Mch. Co., Cleveland, O.
 Fay & Scott, Dexter, Maine
 Reed-Prentice Corp., Worcester, Mass.
 Sidney Machine Tool Co., Sidney, Ohio
- Lathe Chucks**
 Hagen, H. J., 30 Church St., New York
- Lathe Turrets**
 The Co-Operative Mch. Co., Cleveland, O.
- Lathe, Bench**
 Ames Co., B. C., Waltham, Mass.
 Hardinge Brothers, Inc., 1770 Bartsen Ave., Chicago
- Monarch Machine Tool Co., Sidney, O.**
- Lathe, Engine**
 American Tool Works Co., Cincinnati, O.
 Bradford Machine Tool Co., Cincinnati, O.
 Carroll Mch. Tool Co., A. V., Cincinnati, O.
 Carroll & Jamieson Mch. Tool Co., Batavia, O.
 Cincinnati Lathe & Tool Co., Cincinnati, O.
 Fay & Scott, Dexter, Maine
 Hamilton Tool Co., Hamilton, O.
 Hardinge Brothers, Inc., 1770 Bartsen Ave., Chicago
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.
 McCabe Lathe & Machinery Corp., J. J., 149 Broadway, New York
- Monarch Machine Tool Co., Sidney, O.**
 Morris Machine Tool Co., Cincinnati, Ohio
 Porter-Cable Machine Co., Syracuse, N. Y.
 Reed-Prentice Corp., Worcester, Mass.
 Sebastian Lathe Co., Cincinnati, Ohio
 Sidney Machine Tool Co., Sidney, Ohio
 Springfield Machine Tool Co., Springfield, O.
- Lathe, Extension Bed Gap**
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.
 Rahn-Larmon Co., Cincinnati, O.
- Lathe, Gap**
 Carroll Mch. Tool Co., A. V., Cincinnati, O.
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.
- Lathe, Hand**
 Stevens Inc., John B., 27 Cleveland Place, New York
- Lathe, Manufacturing**
 Cincinnati Lathe & Tool Co., Cincinnati, Ohio
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.
 Reed-Prentice Corp., Worcester, Mass.
 Sundstrand Machine Tool Co., Rockford, Ill.
- Lathe, Precision**
 Cincinnati Lathe & Tool Co., Cincinnati, Ohio
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.
 Reed-Prentice Corp., Worcester, Mass.
- Lathe, Short Bed**
 Monarch Machine Tool Co., Sidney, O.
 Porter-Cable Machine Co., Syracuse, N. Y.
 Reed-Prentice Corp., Worcester, Mass.
 Sidney Machine Tool Co., Sidney, Ohio
- Lathe, Tool Room**
 Cincinnati Lathe & Tool Co., Cincinnati, Ohio
 Reed-Prentice Corp., Worcester, Mass.
- Lathe, Turret**
 Bradford Machine Tool Co., Cincinnati, O.
 Cincinnati Lathe & Tool Co., Cincinnati, Ohio
 Monarch Machine Tool Co., Sidney, O.
- Mandrels, Expanding**
 Nicholson & Co., W. H., Wilkes-Barre, Pa.
 Western Tool & Mfg. Co., Springfield, O.
- Mandrels, Solid**
 Nicholson & Co., W. H., Wilkes-Barre, Pa.
- Millers, Tilted Rotary and Offset**
 Oesterlein Machine Co., Cincinnati, Ohio
- Milling Attachments**
 Brown & Sharpe Mfg. Co., Providence, R. I.
 Burke Machine Tool Co., Concord, Ohio
 Kearney & Trecker Corp., Milwaukee, Wis.
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.
 Porter-Cable Machine Co., Syracuse, N. Y.
 Reed-Prentice Corp., Worcester, Mass.
 Stevens Inc., John B., 27 Cleveland Place, New York
 Taylor & Fenn Co., Hartford, Conn.
- Milling Machine Spacing Washers**
 The Co-Operative Mch. Co., Cleveland, O.
- Milling Machines, Bench**
 Ames Co., B. C., Waltham, Mass.
 Burke Machine Tool Co., Concord, Ohio
 Sundstrand Machine Tool Co., Rockford, Ill.
- Milling Machines, Cam**
 Frew Machine Co., Philadelphia, Pa.
- Milling Machines, Hand**
 Burke Machine Tool Co., Concord, Ohio
 Frew Machine Co., Philadelphia, Pa.
 Sundstrand Machine Tool Co., Rockford, Ill.
 Superior Machine & Eng. Co., Detroit, Mich.
 U. S. Machine Tool Co., Cincinnati, O.
- Milling Machines, Horizontal**
 Oesterlein Machine Co., Cincinnati, Ohio
- Milling Machines, Manufacturing**
 Kearney & Trecker Corp., Milwaukee, Wis.
- Milling Machines, Plain**
 Brown & Sharpe Mfg. Co., Providence, R. I.
 Burke Machine Tool Co., Concord, Ohio
 Kearney & Trecker Corp., Milwaukee, Wis.
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.
 Sundstrand Machine Tool Co., Rockford, Ill.

Classified Finding Index

Milling Machines, Portable
 Fedrick Tool & Machine Co., Philadelphia

Milling Machines, Spline
 Taylor & Penn Co., Hartford, Conn.

Milling Machines, Universal
 Brown & Sharpe Mfg. Co., Providence, R. I.
 Kearney & Trecker Corp., Milwaukee, Wis.
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Milling Machines, Vertical
 Brown & Sharpe Mfg. Co., Providence, R. I.
 Burke Machine Tool Co., Conneaut, Ohio
 Kearney & Trecker Corp., Milwaukee, Wis.
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.
 Reed-Prentice Corp., Worcester, Mass.
 Taylor & Penn Co., Hartford, Conn.

Name Plates, Etched and Stamped
 Schwedtle Stamp Co., Bridgeport, Conn.

Nut Setters, Electric
 Vim Tool Co., 149 Broadway, New York

Oil Cups
 Gits Bros. Mfg. Co., 1940 S. Kilbourn Ave.,
 Chicago
 Tucker, W. W. & C. F., Hartford, Conn.

Oil Extractors
 Tolhurst Machine Works, Troy, N. Y.

Pins, Leader And Dowel
 Dambach Mfg. Co., E. A., 1812 So. Kilbourn Ave., Chicago
 Dandy Machine Specialists, Inc., 2116 S. 52nd
 Ave., Chicago

Pipe Bending Machines
 Fedrick Tool & Machine Co., Philadelphia

Planers, Valve Seat, Portable
 Fedrick Tool & Machine Co., Philadelphia

Planing Machines
 Cincinnati Planer Co., Cincinnati, Ohio
 Cleveland Planer Co., Cleveland, Ohio

Point Thinning Machines
 Oliver Instrument Co., Adrian, Mich.

Polishing and Buffing Machines
 Cincinnati Electrical Tool Co., Cincinnati, O.
 Excelsior Tool & Mch. Co., E. St. Louis, Ill.
 Hill-Curtis Co., Kalamazoo, Mich.
 Hisey-Wolf Machine Co., Cincinnati, O.
 Mall Tool Co., 7780 S. Chicago Ave., Chicago
 Nedco Company, Natick, Mass.
 New Britain Machine Co., New Britain, Conn.
 Standard Electrical Tool Co., Cincinnati, O.

Presses, Arbor
 Atlas Press Co., Kalamazoo, Mich.
 Lourie Mfg. Co., 665 Washington, Chicago
 Nicholson & Co., W. H., Wilkes-Barre, Pa.
 Sheldon Machine Co., 3353 Cottage Grove
 Ave., Chicago
 Wilson, R. K., Buffalo, N. Y.

Presses, Broaching
 Lourie Mfg. Co., 665 Washington, Chicago

Presses, Drawing
 Lourie Mfg. Co., 665 Washington, Chicago

Presses, Flanging
 Lourie Mfg. Co., 665 Washington, Chicago

Presses, Foot
 Rockford Iron Works, Rockford, Ill.
 Taylor & Penn Co., Hartford, Conn.

Presses, Forcing
 Lourie Mfg. Co., 665 Washington, Chicago

Presses, Forming
 Lourie Mfg. Co., 665 Washington, Chicago

Presses, Power
 Hendley & Whittamore Co., Beloit, Wis.
 Lourie Mfg. Co., 665 Washington, Chicago
 Rockford Iron Works, Rockford, Ill.

Presses, Punch
 Lenthwaite Mch. Co., T. H., 311 E. 47th., N. Y.
 Rockford Iron Works, Rockford, Ill.

Presses, Screw
 Fall River Grinding & Machine Co., Fall
 River, Mass.
 Jarecki Mch. & T. Co., Grand Rapids, Mich.

Presses, Wheel
 Lourie Mfg. Co., 665 Washington, Chicago

Profiling Machines
 Frew Machine Co., Philadelphia, Pa.
 Oliver Instrument Co., Adrian, Mich.

Pusher Machinery
 Avery Drilling Machine Co., Cincinnati

Pulleys, Iron, Solid and Split
 Conway Clutch Co., Cincinnati, O.
 Jones Foundry & Machine Co., W. A., 4450
 W. Roosevelt Road, Chicago

Pumps, Coolant
 Fulflo Specialties Co., Manchester, O.

Pumps, Hydraulic
 Lourie Mfg. Co., 665 Washington, Chicago

Pumps, Lubricant
 Ruthman Machinery Co., Cincinnati, O.

Punch Press Feeds
 Rockford Iron Works, Rockford, Ill.

Punch, Shear and Bender, Hand
 Armstrong-Bloom Mfg. Co., 341 N. Francisco
 Ave., Chicago

Punches, Hand
 Armstrong-Bloom Mfg. Co., 341 N. Francisco
 Ave., Chicago
 Hendley & Whittamore Co., Beloit, Wis.
 Lenthwaite Mch. Co., T. H., 311 E. 47th.,
 New York
 Whitney Metal Tool Co., Rockford, Ill.

Punches, Power
 Hendley & Whittamore Co., Beloit, Wis.

Punches and Dies
 Hendley & Whittamore Co., Beloit, Wis.
 Lenthwaite Mch. Co., T. H., 311 E. 47th., N. Y.
 Rockford Iron Works, Rockford, Ill.

Punches and Shears
 Buffalo Forge Co., Buffalo, N. Y.
 Excelsior Tool & Mch. Co., E. St. Louis, Ill.

Pyrometers
 Wilson-Masulen Co., Inc., 735 E. 143rd St.,
 New York

Racks, Bar Stock
 New Britain Machine Co., New Britain, Conn.
 Yoke Supply Co., Wm. S., Canton, O.

Reamers, Adjustable
 Cleveland Twist Drill Co., Cleveland, Ohio.
 Schellenbach-Hunt Tool Co., Cincinnati, O.

Reamer Holders
 Nicholson & Co., W. H., Wilkes-Barre, Pa.

Resin, Extension
 Cincinnati Specialty Mfg. Co., Cincinnati, O.

Riveters, Multiple Spindle
 Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveters, Pneumatic
 Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveting Machine Equipment
 Linley Bros. Co., Bridgeport, Conn.

Classified Finding Index

Riveting Machines

Canton Pneumatic Co., Canton, Ohio
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Rad Cutters

Armstrong-Blum Mfg. Co., 341 N. Francisco
Av., Chicago
Hendley & Whittamore Co., Baloit, Wis.
Lewthwaite Mch. Co., T.H., 311 E. 47th, N.Y.
Tucker, W.W. & C.F., Inc., Hartford, Conn.

Rotary Tables, Hand Feed

Stevens Inc., John B., 27 Cleveland Place,
New York

Safety Stops

Atlantic Co., Box 133, Sta. B., Brooklyn, N.Y.

Saw Sharpening Machines

Huther Bros. Saw Mfg. Co., Rochester, N.Y.
Wardwall Mfg. Co., Cleveland, O.

Saws, Electric Hand

Read-Prentice Corp., Worcester, Mass.

Saws, Metal Cutting Circular and Band

Huther Bros. Saw Mfg. Co., Rochester, N.Y.

Scraping Machines, Hand & Pneumatic

Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Drivers, Electric

Heavy Wolf Machine Co., Cincinnati, O.
Vim Tool Co., 149 Broadway, New York

Screw Driving Machines, Automatic

Raynolds Machine Co., Massillon, Ohio

Screw Machine Products

National Acme Co., Cleveland, Ohio.

Screw Machines, Automatic

National Acme Co., Cleveland, Ohio.
New Britain Mch. Co., New Britain, Conn.

Set-Up Appliances

Standard Shop Equip. Co., Philadelphia, Pa.

Shafts, Flexible

Keller Mech. Eng. Corp., 58 A Washington St.,
Brooklyn, N.Y.
Mail Tool Co., 7780 S. Chicago Ave., Chgo.
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N.A., 6001 N. Lincoln St., Chgo.

Shafts, Steel

American Hollow Boring Co., Erie, Pa.

Shaping Machines

American Tool Works Co., Cincinnati, O.
Osborne & Sexton Machy. Co., Columbus, O.
Smith & Mills Co., Cincinnati
Springfield Machine Tool Co., Springfield, O.

Shears, Alligator

Canton Foundry & Machine Co., Canton, O.

Shears, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco
Av., Chicago
Hendley & Whittamore Co., Baloit, Wis.
Lewthwaite Machine Co., T.H., 311 E. 47th
St., New York
Tucker, W.W. & C.F., Inc., Hartford, Conn.
The Unishear Co., 270 Lafayette, New York
Whitney Metal Tool Co., Rockford, Ill.

Shears, Electric Hand

The Unishear Co., 270 Lafayette, New York

Shears, Power

Hendley & Whittamore Co., Baloit, Wis.
The Unishear Co., 270 Lafayette, New York

Sheet Metal Cutting Tools

The Unishear Co., 270 Lafayette, New York

Slotting Machines, Screw Head

Stevens Inc., John B., 27 Cleveland Place,
New York

Spacing Washers

Detroit Stamping Co., Detroit, Mich.

Special Tools and Machinery

Bradford Machine Tool Co., Cincinnati, O.
Foote Bros. Gear & Machine Co., 213 Curtis
St., Chicago

Illinois Machine & Mfg. Co., LaSalle, Ill.
LaPorte Machine & Tool Co., LaPorte, Ind.
Read-Prentice Corp., Worcester, Mass.

Stecher Co., Chas., 2452 N. Greenview Ave.,
Chicago

Superior Machine & Eng. Co., Detroit, Mich.

Speed Reducers, Worm, Spur and

Herringbone

Foote Bros. Gear & Machine Co., 213 Curtis
St., Chicago

Jones Foundry & Machine Co., W. A.,
4450 W. Roosevelt Road, Chicago

Ohio Gear Co., Cleveland, Ohio.

Spindles, Air Driven

Ex-Cell-O Tool & Mfg. Co., Detroit, Mich.

Spindles, Grinding

Ex-Cell-O Tool & Mfg. Co., Detroit, Mich.

Spring Taper Sleeves

Scherr Co., Geo., 144 Liberty St., New York

Spring Winding Tools

Superior Spring Winding Tool Co.,
Milwaukee, Wis.

Sprockets

Foote Bros. Gear & Machine Co., 213 Curtis
St., Chicago

Jones Foundry & Machine Co., W. A.,
4450 W. Roosevelt Road, Chicago

Massachusetts Gear & T. Co., Woburn, Mass.

Stamps, Steel and Rubber

Schwerdtle Brass Co., Bridgeport, Conn.

Stencils, Stamp and Oil Board

Schwerdtle Stamp Co., Bridgeport, Conn.

Stools and Chairs, Factory

Cayo Mfg. Co., Benton Harbor, Mich.
Chicago Wire Chair Co., 619 N. La Salle St.,
Chicago

Stop Motions

Atlantic Co., Box 133, Sta. B., Brooklyn, N.Y.

Straightening Machines

Springfield Machine Tool Co., Springfield, O.
Whitney Metal Tool Co., Rockford, Ill.

Stud Setters

Proconier Safety Chuck Co., 18 S. Clinton
St., Chicago

Tap Extractors

Walton Co., Hartford, Conn.

Tap Holders

Richell-Thomas Co., Greenfield, Mass.
Proconier Safety Chuck Co., 18 S. Clinton
St., Chicago

Tapping Machines and Attachments

Alto Mfg. Co., 1647 Wolfram St., Chicago.
Avey Drilling Machine Co., Cincinnati
Baker Brothers, Inc., Toledo, Ohio.
Richell-Thomas Co., Greenfield, Mass.
Burke Machine Tool Co., Conneaut, Ohio
John H. Dorman, West New York, N. J.
Eastern Tube & Tool Co., Inc., 600 Johnson
Ave., Brooklyn, N. Y.

Frew Machine Co., Philadelphia, Pa.

Hammond Mfg. Co., Cleveland, Ohio

Leland-Gifford Co., Worcester, Mass.

Proconier Safety Chuck Co., 18 S. Clinton
St., Chicago

Richert-Shafer Co., Erie, Pa.

Whitney Metal Tool Co., Rockford, Ill.

Thread Dies

Colven, J. M., Yonkers, N. Y.

Thread Millers

Scherr Co., Geo., 144 Liberty St., New York
Triplex Machine Tool Corp., 60 Church St.,
New York

Threading Machines

Richert-Shafer Co., Erie, Pa.

Classified Finding Index

Threading Machines, Automatic, Stud
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Threading Tools

Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago
Zeerman-Clark Mfg. Co., 225 W. Huron St.,
Chicago

Tool Holders

Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago
Hagen, H. J., 30 Church St., New York
Western Tool & Mfg. Co., Springfield, O.

Tool Racks

Chicago Wire Chair Co., 619 N. La Salle St.,
Chicago

Tools, Boring

Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago

Tools, Lathe and Planer

Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago

Trucks, Machine Shop

New Britain Machine Co., New Britain, Conn.

Tube Flanging Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Turntables

Canton Foundry & Machine Co., Canton, O.

Turret Tool Feeds

Fay & Scott, Dexter, Maine

Universal Joints

American Tool Works, Inc., Hartford, Conn.
Borgeson Mfg. Co., Inc., Torrington, Conn.
Boston Gear Works Sales Company, Norfolk
Downs, Mass.

Used and Rebuilt Machinery

Badger-Packard Mch. Co., Milwaukee, Wis.
Bath & Co., Cyril J., Cleveland, O.
Bennett Mch. Co., 50 Church St., New York
Bernstein & Co., Geo. M., 549 W. Washing-
ton Blvd., Chicago

Broadway Machinery Co., 211 Centre St.,
New York, N. Y.

Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.

Carlson Machinery Co., Davenport, Iowa
Central States Machinery Co., 184 S. Clinton,
Chicago

Cincinnati Mch. & Supply Co., Cincinnati, O.
Clinton Mch. Co., 128 S. Clinton St., Chgo.

Co-Operative Mch. Co., Cleveland, Ohio,
Davis Machinery Exchange, Toledo, O.

Detroit Machinery Exchange, Detroit, Mich.
Donahue Steel Products Co., 74th and
Ashland Ave., Chicago

Eastern Machinery Co., Cincinnati, O.
Emerson & Co., Louis E., 1761 Elston Ave.,
Chicago

Empire Machinery Exchange Co., Inc.,
Cleveland, Ohio

Easley Machinery Co., E. L., 551 Washington
Bld., Chicago

Foster Machinery Co., Cleveland, O.
Harris Bros. Co., 35th & Irving, Chicago

Haskell Mch. Co., Detroit, Mich.
Hill, Clarke & Co., 649 W. Washington
Bld., Chicago

Howarth Co., C. C., Detroit, Mich.
Hyman & Sons, Joseph, Philadelphia

Indianapolis Mch. & Supply Co., Indian-
apolis, Ind.

International Mch. Co., Detroit, Mich.
Johnson & Sons Machinery Co., Wm. G.,
St. Louis, Mo.

Jones Machine Tool Co., Cincinnati, O.
Kinsey Co., E. A., Cincinnati, O.

Klauber Mch. Co., E. L., St. Louis.
Little Co., W. P., Cleveland, O.

Lucas & Son, Inc., J. L., Bridgeport, Conn.
McCabe Lathes & Machinery Corp., J. J.,
149 Broadway, New York

McDonald Machinery Co., St. Louis
Machine Tools Sales Co., Philadelphia, Pa.

Manning, Maxwell & Moore, Inc., 27 No.
Jefferson, Chicago

Used and Rebuilt Machinery—Cont.

Marr-Galbreath Mch. Co., Pittsburgh, Pa.
Midwest Eqpt. Co., 634 W. Lake St., Chgo.

Mid-West Machine Tool & Supply Company,
Davenport, Iowa

Miles Machinery Co., Saginaw, W. S., Mich.
Molitor Mch. Co., Chas., 118 S. Clinton St.,
Chicago

Morey and Co., Inc., 608 Broome St., N. Y.
Morris Machine Tool Co., Cincinnati, Ohio

Morton Machinery Co., Cleveland, Ohio
Motch & Merryweather Machinery Co.,
Cleveland, O.

Nelson Machinery Co., Green Bay, Wis.
Norton-Broadway Mch. Co., Cincinnati, O.

O'Brien Machinery Co., Philadelphia
Osbome & Sexton Mch. Co., Columbus, O.

Palmer-Edwards Co., Flint, Mich.
Ramming Machine Co., John, St. Louis, Mo.

Randie Machinery Co., Cincinnati, O.
Reed-Prentice Corp., Worcester, Mass.

Reeve-Frith Co., 558 W. Washington, Chgo.
Reliance Mch. Sales Co., Pittsburgh, Pa.

Rentschler & Co., J. P., 607 W. Washington
Bld., Chicago

Riverdale Machinery Depot, Detroit, Mich.
Rosenfeld Mch. Co., 343 W. Lake St., Chgo.

Russell Machine Co., Pittsburgh, Pa.
Scott-Bansbach Mch. Co., 130 S. Clinton,
Chicago

Selfreast-Elsand Machinery Co., Dayton, O.
Simmons Machine Tool Corp., Albany, N. Y.

Stoehr Machinery Co., A. M., 415 Mid-City
Bank Bldg., Chicago

Strafer Machinery Co., Jersey City, N. J.
Strong, Carlisle & Hammond Co., Cleveland

Sun Machinery Co., Newark, N. J.
Syracuse Supply Co., Syracuse, N. Y.

Taylor-Hall Welding Corp., Worcester, Mass.
Toledo Machinery Exchange, Toledo, Ohio

Tubor-Velick & Co., 630 W. Lake St., Chgo.
United Mch. & Supply Co., St. Louis

Wertman Mch. Co., M. A., Cleveland, O.
West Penn Machinery Co., Pittsburgh, Pa.

White Mch. Co., A. D., 108 N. Jefferson
St., Chicago

Wigglesworth Machinery Co., Boston, Mass.
Winterer, Herman L., Philadelphia

Vise Grips

Pitts & Kitts Mfg. & Supply Co., 91 Seventh
Ave., New York

Vises, Drilling Machine

Armstrong-Blum Mfg. Co., 841 N. Francisco
Av., Chicago

Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago

Barker & Co., Wm., Covington, Ky.
Cayo Mfg. Co., Benton Harbor, Mich.

Marsh Machinery Co., A. R., Cleveland, Ohio
Martin Tool & Die Works, J. E., Springfield, O.

Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Vises, Machinists'

New Britain Machine Co., New Britain, Conn.
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine

Barker & Co., Wm., Covington, Ky.
Hagen, H. J., 30 Church St., New York

Hartford Special Mch. Co., Hartford, Conn.
Marsh Machinery Co., A. R., Cleveland, Ohio

Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Stevens Inc., John B., 27 Cleveland Place,
New York

Vises, Shaper

Hagen, H. J., 30 Church St., New York
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Wood Working Machinery

Frew Machine Co., Philadelphia, Pa.
Hendley & Whittemore Co., Beloit, Wis.

New Britain Machine Co., New Britain, Conn.
Porter-Cable Machine Co., Syracuse, N. Y.

Worms

Massachusetts Gear & T. Co., Woburn, Mass.
Jones Foundry & Machine Co., W. A., 4450
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Reamers made with Left Hand Angle Cutting Blades do not dig in, and all chatter is eliminated. This means free, clean cutting, smooth holes, and increased production.

The range of expansion is from .100" in the smaller sizes to .150" in the larger sizes. Made with High Speed Steel Blades.

This is a real production reamer. The left hand helical flutes cut fast and clean. Made only in high speed steel. Made with straight and tapered shanks.

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Write directly to those offering the machines for sale, for prices and full descriptions. If what you seek is not advertised, use the blank enclosed to make known your wants in either new or used machinery, and the publisher will pass them along to the advertisers.

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Fitchburg Grinding Machine Corporation,

Fitchburg, Mass.

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22"x22"x6' Whitcomb.		4" 4-spindle Radical screw mche.
	TURRET LATHES AND SCREW MACHINES.	24"x26" Greenlee.
3x36" J. & L., chuck equipment,		21" Gisholt.
double spindle.	MILLERS.	
No. 1 Steptoe.		1-No. 25 Becker.
3"x24" Rockford horizontal.	BORING MILLS.	
		24" Reed-Prentice horizontal.

FOR SALE BY

Carlson Machinery Co., Inc.,

Davenport, Iowa

Boring mill, 36" Bullard, 2 heads.	Lathe, 22"x8' Mershon turning.
Boring mill, 60" Niles, 2 heads.	Planer, 16"x4' Hendey.
Drill, No. 1 Burke on pedestals,	Press, No. 1 Marshalltown o. b. i.
Jacobs chuck.	Press, C-1 Ferracute o. b. i., 1000 lbs.
Grinder, 24" Inger, cutter, tub type.	Press, No. 3 Rockford o. b. i., 2400 lbs.
Grinder, 10x20 Landis universal.	Press, No. 3 Hoeft o. b. i.
Grinder, Type B Yankee drill point.	Press, No. 30 Crosby o. b. i.
Lathe, 7"x32" Pratt & W. bench,	Press, No. 4 Toledo o. b. i.
24 collets.	Press, No. 82 Crosby foot kick pr.
Lathe, 8"x38" Rivett bench, 9 collets.	Press, No. 2 Springfield straightening
Lathe, 11"x3' Blount speed.	Turret lathe, 14" cap., bar feed, with
Lathe, 14"x6" Lodge & Shipley.	30 collets.

FOR SALE BY

Badger-Packard Mch. Co., 133-9 W. Water St., Milwaukee, Wis.

Boring mill, 50" Bausch, motor drive.....	\$1,950.
Broach, No. 0 LaPointe	50.
Drill, 5-spindle Kern, all ball bearing.....	250.
Drill, multiple, No. 154 Foote-Burt, Nos. 2 and 3 M. T. in spindle	550.
Grinder, No. 14 Brown & Sharpe plain cylindrical	350.
Grinder, 10x50 Norton cylindrical.....	650.
Grinder, No. 10 Bryant chucking.....	350.
Grinder, No. 18 Bryant chucking	350.
Lathe, Flather geared head, motor drive, 14"x8'	550.
Miller, No. 14-B Milwaukee univ., single pulley drive, dbl. overarm ..	1,650.
Miller, No. 2 Knight vertical.....	375.
Miller, Cincinnati production, No. 12.....	150.
Radial, Almond extension arm post.....	225.

USED AND REBUILT MACHINERY

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Drill, Allen, 3 spindles.
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Grinder, 10"x52" Landis, s. p. d.
Grinders, surface, No. 22, Heald.
Hobbers, Nos. 3, 12-B & C.
Lathe, No. 9 LeBlond multi-cut.

Miller, No. 3 Cincinnati plain, cone.
Miller, No. 13-B B. & S., production.
Miller, No. 1 Brown & Sharpe.
Miller, 30"x10" Ingersoll, 4 heads.
Planer, 60"x60"x16" Pond.
Radials, 3' Morris, Cincinnati Bick.

Partial list; send us your inquiries.

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Indiana Machinery Co., Corner Murray & Clinton, Fort Wayne, Ind.

Drill, Kokomo high speed, 16" overhang.....	\$150.
Lathe, 12"x6" Springfield.....	150.
Lathe, 16"x9" Chard geared head, 12 speeds, with new motor.....	750.
Lathes, 22"x12" Niles loose change, heavy, 5 of these.....	225.
Lathe, 24"x14" Niles loose change, heavy.....	300.
Milling machine, Bilton.....	275.
Planer, Niles heavy, 48"x48"x14' table, 2 heads.....	750.
Radial drill, Niles, 6' full universal, single pulley, gear box drive.....	750.

FOR SALE BY

McDonald Machinery Co.,

1531-33 N. Broadway, St. Louis, Mo.

Arbor presses, Eames No. 6.
Boring mill, Barrett 5" horiz.
Boring mills, 6 Bullard 42" low price.
Chain hoists, 1, 1½, 2 and 3-ton.
Demagnetizer, Walker.
Drill, Baush 18-spd.; Moline 32-sp.
Drills, Baker, heavy duty (2).
Drills, Leland-G 1-sp. h.s., b.b. floor.
Drills, Kokomo 1-spindle, Sipp 1 and 2-spd., h. s., b. b.
Drills, 20", 24", 26 & 28" b. g., & tap.
Drills, Prentice 3'; Bickford 4' radials
Mueller s. p., 3' radial.
Gear hobber, Gould & E. 24".
Grinders, Landis piston, motor drv.
Grinder, Heald No. 60 cylinder.
Grinders, modern internal; Blount 30", wet (3), Heald 8", mag. ck.
Grinders, St. Louis No. 9.
Grinder, Reed-Prentice vert. surf., 2 chucks.
Grinder, Landis 16"x66" crankshaft.
Hack saws, 4x4, 6x6 & 2 Racine Jrs.
Atkins 4x4" Marvel No. 2; Racine h. s., Robertson, No. 3, h. s.
Hammers, Bradley 40 lb. helve;
Lathes, Bridgeford 36"x12", q. c. g.; L. & S. 36"x16" q. c. g., d. b. g.; American 20"x10"; Lehman 16"x9" q. c. g.; quick change geared Whitcomb-Blaisdell 22"x8" q. c. g. Monarch 16"x8" C. & J. 15"x8" all quick chage geared; 40 assorted sizes.
Milling machines, Ohio No. 20 plain.
Hendey No. 2 universal;
LeBlond No. 3-H plain; Brown & S. No. 3 plain; B. & S. No. 3 B pl., s. p. d.; American No. 1½ plain; Cincinnati No. 3 plain; Becker No. 25 plain, Kemp No. 3 univ.

Milling and drilling mchs., Knight No. 1½ with power feed.
Pipe machine, Curtis 3", motor dr.; Merrill 4" belt drive, Jarecki 2"; E. C. & B. 16".
Planers, Gray 28"x28"x8", 1 head; Cincinnati 36"x36"x18" 2 heads; Pond, 36"x36"x12" table, 18' bed, 2 heads.
Punches, W. & W. No. 17 punch.
Punch presses, 4-Consolidated No. 2; Holden No. 58; Bliss No. 62 grd.; Ferracute No. 1 o. b. i., (2) Federal Nos. 1, 2, 3; Niagara No. 4½ o. b. i.; Bliss No. 19-C.
Pyrometer, Thwing elec., with rec.
Rolls, Badger 50" Pyramid power rolls, 8" dia. ½" cap.
Saw, Peerless universal shaping.
Screw machine, Cleveland 24" auto.; P. & W. No. 2½ hand; Foster No. 3 hand; Woods No. 2 tilted turret head; Bardons & O. No. 7; National-A. No. 52 auto., 4-spindle, m. d.; Milholland b. g. hand; Foster No. 7 hd. b. g.
Shapers, S. M. 16"; 24" Queen City 24" back geared, American 18" back grd.; American 20" b. g.; G. & E. 16", b. g.; Smith & Mills 29" b. g., s. p. gear box; Niles traveling head; Milwaukee 16" b. g.; Walcott 20" b. g.; S. & M. 21" and 26" b. g.; Cincinnati 24" b. g.
Shears, 60" thr. rotary slitting, (2).
Square shears, Niagara 52" power, m. d. 18-ga.
Threading machines, Webster & Perks 4-spindle; Geometric.
Welders, butt, Federal, ½" rds.
Welder, spot, Vollans.

USED AND REBUILT MACHINERY

FOR SALE BY

Marr-Galbreath Machinery Co.,

Air comp., 4½x4½ Curtis, 24 cu. ft.
Arbor press, No. 5 Atlas.
Blowers, Root No. 4, 500 c. p. m.
Blowers & exh., 6, 8, 9 & 16" opening.
Bolt cutters, 1½" Landis, 2 heads.
Bolt cutters, 1½" Morgan, 2 heads.
Boring mill, floor type, 6" bar.
Boring mill, 36"—44" N-B-P side head, motor drive.
Brake, 6" D & K, 18 ga. hand power.
Brake, 4"x18 ga. D. & K. hand.
Brake, 8"x12 ga. Power, Chicago.
Burnishing barrel, 24"x16", glass lined.
Cold header, 1" W-F., solid die.
Cold header, ¾" W-F., solid die.
Cold saws, Nos. 11½ and 12 Higley.
Draw bench, Oliver, 6', 275 lb.
Draw bench, 10,000 lb. for shapes.
Drill, 20" Prentice, plain.
Drill, 28" Superior, b. g., s. h.
Drill, radial, 30" Taylor & Fenn.
Drill, radial, 10' for m. d., (cheap).
Drill, radial, 7' Prentice, s. p. d.
Drill, radial, 5' Prentice.
Drills, radial, 3' & 3½ Bickford.
Furnace, rotary annealing, 12"x8".
Furnace, gas hardening, 10"x6"x12".
Furnaces, oil tempering, 10"x10"x10".
Gear and pinion cutter, No. 3 Sloan.
Grinder, No. 1 Norton universal tool and cutter.
Grinder, No. 3 Brown & Sharpe univ. cutter & reamer.
Grinder, No. 11 B. & S., plain.
Grinder, surface, No. 1W. & M., m. d.
Grinder, 12" Bristol, rotary surface.
Hack saws, 8" Atkins, mtr. 1/60/220.
Hack saws, 8" Economy; 5" Q. & C.
Hammers, 40 & 80 lb., Bradley helve.
Hammers, 75 & 150 lb. Bradley upright.
Hammer, 2-B. Nazel, belt and motor.
Hammer, 2500 lb. Chbg., s. f. steam.
Hammers, stm. s. f. 600, 1100, 1500 lbs.
Hammer, 1000 lb. Chbg., steam drop.
Hammer, 250 Chbg. board drop.
Hoist, 4 ton V & T high speed.
Hoist, 1 ton C & M spur gear.
Hoists, air, 700, 800 & 1300 lbs.
Keyseaters, Nos. 0 and 2, M. & M.
Keyseaters, No. 00 & No. 2 Baker.
Keyway cutter, 24" Morton, cap. 2½".
Lathe, 9"x3' Shepard, speed.
Lathe, 14"x8" Monarch, t. a.
Lathe, 18"x8" Cisco, q. c. g.
Lathe, 20"x8" Am., q. c. g., chuck \$250.
Lathe, 16"x10" Monarch, grd. hd., t. a.
Lathe, 24x10 Pgh.—\$250.

58 Water St., Pittsburgh, Pa.

Lathe, 26"x10' Walcott, q. c. g.
Lathe, 21"x14' LeBlond, g. h. (Mfg)
Lathe, 36"x64' Bridgeford gun bor.
Lathe, 20"x10' Sidney, q. c. g., t. a.
Lathe, pattern maker's, 24"x11".
Millers, No. 3 Cin. pl. geared feeds.
Miller, No. 0 Kempsmith univ.
Miller, vertical, No. 3 Becker, cone.
Motor, 7½ h. p., 3/60/220/1800.
Motor, 10 h. p. a. c., 3/60/220/1740.
Motor, 25 h. p. slip rg., 3/60/220/1160.
Motor, 20 h. p., 3/60/220/1200.
Paperslitter, 15" Jacques, bench.
Pipe machine, 12" Williams, s. p. d.
Pipe machine, 4" Williams, m. d.
Planers, 48x48x20", 3-heads, Gray.
Planers, 33x33x10", 2-hds., W. & P.
Planer, 22"x22"x5" Cincinnati, 1 hd.
Press, No. 3A Bliss, adj. table.
Press, DGG-55 Fer., 20" str., b. g.
Press, No. 2 Barouth o. b. i., 16,000 lb.
Press, No. 94 Bliss, punch type.
Press, No. 3 Bliss, punch type.
Press, No. 1 Toledo o. b. i., pl. m. d.
Press, No. 14 Stiles (Bliss) plain.
Press, punch type, United, 15,000 lb.
Press, D. G. 62, Ferracute, s. s.
Press, No. 3 Massillon, trimming.
Presses, No. 87 Niagara, screw.
Pump, Centrifugal, 4" disch., m. d.
Punch, 30" thrt., 1"x1" m. d., s. e.
Punch, Rapid, 20" thrt., 1"x½" m. d.
Punch, coping, steel plate, 12" thrt.
36" die space, 2 holes 1"x1", m. d.
Punch & shear, 72" W. W. 2"x1½" motor drive.
Punch & shear, No. 23 Marvel hand.
Punch & shear, 17-B. New Doty, 10" throat, m. d.
Riveter, 1-AA. High Speed, m. d.
Riveter, Allen jaw, 36" cap. 1½".
Riveter, ½" Shuster rotary, belt.
Saw, Newton, 62" blade, comb.
Saw, Burke, 12" blade, capacity.
Screw mche., 10" P. & W. pl., w. fd.
Shaper, 16" American, b. g. crank.
Shaper, 26" Smith & Mills, b. g., cr.
Shear, alligator, Canton 2½", No. 4.
Shear, rotary, 12" thrt., cap. 10 ga.
Shear, rotary, No. 2 Niagara, hand.
Shear, rotary bevel, ½", m. d.
Shear, squaring, 8"x14 ga. power.
Shear, squaring, 60"x14 ga. Canton.
Tumbling barrel, 72"x18", c. i.
Turbo compres., Spencer 5400 c.f.m.
Turbo-generator, 500 kw, 3/60/2200.
Turret lathe, 13" Gisholt, 2½" h. s.

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Toledo 110 5 k. w.
Federal Jr. 10 k. w.
Winfield "S" 10 k. w.
Winfield "N" 10 k. w.
Detroit 7½ k. w.

BUTT

Toledo No. 3, foot operated.
Thomson 2A.
Toledo 10B.
Federal 11A.
Thomson 7A auto, 11 k. w.

Every welder rebuilt and guaranteed.

FOR SALE BY

Davis Machinery Exchange, 1-3-5 So. St. Clair St., Toledo, Ohio

Air compressor, 4½x5 Ingersoll-Rand.
Air compressor, 6x6 Chicago pneumatic, tank.
Air compressor, 6x5 Ingersoll-Rand.
Band saw, 10" Napier metal cutting.
Bolt threaders, 1½" and 2" National.
Boring mill, 24" Bullard vertical, new era head.
Brake, 8" Chicago, cap. 18 ga.
Drill, 20" Barnes camel back.
Drill, 20" Rockford, b. g. and p. f.
Drill, 20" Barnes, 4-spindle.
Drill, Leland-Gifford high speed, motor drive.
Drill, No. 310 Baker hvy. duty, (2).
Drill, 4" Hammond hinged arm radial, tapping attachment.
Drill, 3" gang radial, tapping attachment, universal table.
Drill, 16" Kern hi-speed.
Drill, 4-spindle Foote-Burt rail.
Drill, 6-sp. Nat. Acme horizontal.
Forming rolls, 66" Pettingell hand.
Grinder, No. 1 Greenfield plain.
Grinder, No. 2 Gardner disc, comp.
Grinder, No. 19-53" Besly vert. disc.
Grinder, No. 60 Heald cylinder.
Grinder, Walker universal.
Grinder, No. 2 Grand Rapids tool and cutter.
Hack saw, 6"x6" Racine power.
Hammer, 8" Schuster riveting.
Hammer, No. 14-B High Speed riveting, m. d.
Keyseater, No. 0 Mitts & Merrill.
Keyseater, No. 2 Baker.
Lathe, 9"x18" Porter-Cable.
Lathe, 14"x6" Monarch q. c. g., chuck.
Lathe, 16"x6" Monarch q. c. g., chuck.
Lathe, 16"x8" Oliver q. c. g., engine.
Lathe, 16"x8" Monarch l. c. g., eng.
Lathe, 18"x8" Perfection q. c. g., eng.
Lathe, 22"x8" National q. c. g., engine, geared hd., single pulley dr.
Lathe, engine, 18"x7" Lehmann, q. c. g., chuck.
Lathe, 24"x12" American q. c. g., heavy duty.

Lathe, 18"x10" American q. c. g., ck.
Lathe, engine, 24"x12" Greaves-K., l. c. g.
Mill, No. 1 Cincinnati universal.
Mill, No. 2 Rockford universal, index head, complete.
Mill, No. 3B Brown & Sharpe plain, heavy duty.
Mill, No. 1 Cincinnati plain, cone pulley, geared feeds.
Mill, No. 6 Whitney hand.
Mill, No. 12 B. & S. production, (2).
Miller, Fox hand.
Pipe threader, 4" Merrill, full set of dies.
Press, arbor, No. 28 Atlas.
Press, arbor, No. 3 Greenerd.
Press, No. P1 Ferracut s. b.
Press, No. P2 Ferracut s. b.
Press, No. 4 Adriance o. b. i.
Press, No. 4 Toledo o. b. i., flywheel.
Press, No. 6 Bliss horiz. heading.
Press, John Evans multiple shearing, punching or trimming.
Punch and trimmer, John Evans double end.
Riveter, Eveland electric.
Rolls, John Evans large tapering.
Screw machine, No. 1 Warner & S.
Screw machine, No. 1 Garvin hand.
Screw mche., ½" Pratt & Whitney.
Shaper, 10" Gould & E. crank.
Shaper, 16" American crank b. gr.
Shaper, 16" Steptoe crank, bk. grd.
Shaper, 20" Kelley crank, back grd.
Shaper, 20" Mattison crank, b. g.
Shaper, 24" G. & E. crank, b. g.
Shaper, 24" Milwaukee cr., bk. grd.
Shaper, 26" Smith & Mill crank, b. g.
Shear, Yoder circular, m. d.
Shear, No. 136 J. M. Robinson pwr. square, cap. 36"x18 gage.
Turret, lathe, No. 5 Foster, power feed to turret and cross-slide.
Turret lathe, No. 7 Foster, power feed to turret and cross slide.
Welder, Taylor spot, 13 k. v. a.
Welder, Taylor spot, 50 k. w., 40 cy., 440 v.

USED AND REBUILT MACHINERY

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

MILLING MACHINES.

- | | |
|-----------------------------------|------------------------------------|
| No. 2 Kempsmith Maximiller univ. | No. 2 Becker vert., rotary table. |
| No. 3B Milwaukee plain, dbl. arm. | No. 2 Oesterlein plain. |
| No. 3 Hendey plain. | No. 4 Fox miller, single pulley. |
| No. 2 Rockford plain. | 48" Niles double head boring mill. |
| No. 2 Brown & Sharpe plain. | 24" Binnse horizontal boring mill. |
| No. 2 Owen universal. | Large variety hand millers. |

LATHES.

- | | |
|---------------------------------------|---------------------------------------|
| 26"x13' Wickes, semi-quick chg. gr. | 16"x 8' Cincinnati, q. c. g., taper. |
| 24"x12' Bradford q. c. g. | 18"x8' Rockford, taper att. |
| 20"x8' Hendey taper draw collets. | 18"x8' Prentice, geared head. |
| 18"x10' Davis, q. c. g. | 14"x6' Rockford, q. c., draw, collet. |
| 18"x 8' Pratt & W. q. c. g., collets. | 14"x 6' Bradford q. c. g. |
| 18"x 8' Greaves-Klusman q. c. g. | 14"x6'-12"x6' Hendeys, taper draw. |

GRINDERS.

- | | |
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| No. 2 Norton universal (2). | 4"x12" Norton self-contained. |
| No. 13 Brown & Sharpe universal | 10"x16" Sterling universal. |
| No. 1 Brown & Sharpe universal. | No. 6 Heald internal. |
| No. 3 Brown & Sharpe universal. | Bryant internal chucking. |
| No. 16 Brown & Sharpe cylindrical. | Abrasive surface, magnetic chuck. |

GEAR CUTTERS.

- | | |
|-------------------------------------|------------------------------------|
| 8"x22" Fellows gear threader, m. d. | Brown & Sharpe No. 13 gear cutter. |
| No. 3 Barber-Colman auto. gr. gen. | 4" Waltham auto. gear cutters (4). |

RADIALS AND DRILLS.

- | | |
|----------------------------------|-----------------------------------|
| 6' American triple purpose. | 2-spindle Sipp. |
| 6' American triple geared. | 4-spindle Aveys, Leland-Gifford. |
| 4' American triple geared. | Henry & Wright high speed, b. b. |
| 4' Fosdick. | 6-spindle 20" Barnes, power feed. |
| 6' Prentiss Bros. | 28" Snyder sliding head. |
| 5' Reed-Prentice. | 24" Aurora sliding head. |
| 3' Bickford, all gear, box feed. | 20" & 24" camel back. |

PRESSES AND SHEARS.

- | | |
|-------------------------------------|----------------------------|
| 8' Toledo square shear, 3/16". | No. 5A Toledo. |
| 5' steel sq. shear, 12 gauge. | Smaller shears and brakes. |
| 52"x16" gap square shear. | No. 15 Toledo 20" throat. |
| 1500 lb. W. & W. drop drop hammers. | |

Large variety and sizes of rotary shears, benders, etc.

SHAPERS.

- | | |
|-----------------------------------|-----------------------------------|
| 24" Milwaukee geared, crank. | 16" Rockford geared, crank. |
| 20" American geared, crank. | 15" Hendey, tight & loose pulley. |
| 16" American geared, crank. | 16" American crank. |
| 16" Flather crank, single pulley. | |

SCREW MACHINES AND TURRET LATHES.

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|---|--|
| No. 6 Warner & Swasey heavy duty, carriage, power cross feed. | Nos. 0 & 2 B. & S. semi-auto. |
| No. 6 Warner & Swasey tur. lathe. | Nos. 2 & 00 B. & S. tur. formers. |
| No. 4 W. & S. fox lathe, grd. frict. | 3"x8" Cleavelands. |
| No. 4 Warner & Swasey b.g., fr. hd. | 1", 4-sp. Gridleys, auto. (2). |
| No. 2 Warner & Swasey screw mch. | 24" Jones & Lamson (2). |
| No. 1 Warner & Swasey screw mch. | 11" Acme b. g., friction head. |
| No. 2 Warner & Swasey hex. tur. | 14" & 24" Fosters, univ. and plain. |
| 1" cap. Pratt & Whitney. | No. 1-B Foster univ., grd. hd. (3). |
| | Large variety of smaller Fosters, etc. |

MISCELLANEOUS.

- | | |
|--|---|
| Bolt cutters, 1", 1 1/2" Landis. | Keyseaters, No. 1 Davis. |
| Bolt cutters, 1/2"-1 1/2" (3). | Tappers, 1/2" Garvin, Pratt & Whitney. |
| Keyseaters, Nos. 0 & 2 Becker. | 1/2" Landis 1/2" Geometric gear cutter. |
| Large stock of lathes, punch presses, plain and universal grinders, 24", 4' 8', 8', 10' power squaring shears, tappers, several hundred Warner & Swasey, Potter & Johnston, etc., box, boring tools etc. | |

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Guaranteed NEW MACHINES in original crates at prices below list:
Pipe machine, No. 70 Forbes. | Straightener, No. 24 Corey.

Exceptional values in USED TOOLS:

Bolt threader, Acme 2-spindle, with one head, $\frac{1}{2}$ " capacity.
Drill, Barr 4-spindle, 8" overhang.
Grinder, Blount 14x14 wet tool, m. d.
Knife grinder, 30".
Lathe, 8x60 Fitchburg lo-swing.
Lathe, 26"x10" Cooper Bros., \$125.
Millers, Wisconsin hand, (3).
Pipe threader, Jarecki belt drive.
Radial, 5' Pond.

Radial, 5' Dresses, single pulley drive, gear box, \$475.00.
Rip saw, No. 24 Powers, self feed, power.
Screw machine, No. 24 Garvin.
Thread miller, No. 12 Lees Bradner.
Tilted turret, No. 6 Wood.
Turret lathes, No. 4 Foster, (2).
Turret lathe, 24x36 Pratt & Whitney.

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Road,

N. S. Pittsburgh, Pa.

Air compressors, 8"x8" b. d.
Air compressors, 8"x8" m. d.
Air compressors, 20"x18" m. d.
Automatics, $\frac{1}{2}$ " Cleveland s. s., (2).
Automatic, $\frac{1}{2}$ " Gridley, cone drive.
Automatics, Nos. 52 & 53 Acme.
Bolt cutter, 24" Acme, single head.
Bolt cutters, 1", $\frac{1}{2}$ ", 1- $\frac{1}{2}$ " single head.
Boring mill, D. & H., 24" bar.
Boring mill, 60" Gisholt 2 heads, geared feeds.
Boring mill, 25" Sellers, 2 heads, full motor drive.
Boring mill, 51" Bullard, 2 heads.
Bulldozers, No. 27 Williams-White, motor drive.
Buffers, 10 h. p., 220-3-60-3600.
Broach, No. 3 LaPointe.
Centering mche., Cadillac dbl. end.
Drills, bench type, m. d., new.
Drills, 15, 20, 21" floor type, b. d. or m. d.
Drills, 20" plain feed, (4).
Drills, 20" and 21" back geared, new.
Drills, 23", 24", 25" sliding head.
Drills, radial, 24", 4', 5' and 6'.
Drill, 36" T. & F. sensitive radial.
Drill, 3" Mueller, s. p. d., gear box.
Drill, P. & W. multiple, 12-1" spdis.
Drill, D-3 Colburn heavy duty, (2).
Drill, No. 25 Foote-Burt hvy. duty.
Drill, No. 25-36" Foote-B. hvy. duty.
Gear cutter, No. 1 Bilton.
Gear cutter, No. 13 Brown & Sharpe.
Grinder, 5 h. p. U. S., 220-3-60.
Grinder, Oliver drill, $\frac{1}{2}$ " cap., m. d.
Grinder, 12"x24" Modern plain.
Grinder, No. 1 Norton univ. cutter.
Grinder, No. 24 Bath universal.
Grinder, 7 h. p. Ransome, 220-3-60.
Grinder, No. 16 Besley disc.
Grinders, 4 h. p. to 10 h. p., m. d., new.
Hammers, No. 2-A, h. d. Hi-Speed, m. d., 3 ph., 60 c.y., 220 v., (4).

Hammer, No. 1AA High Speed, m. d.
Hammers, 60 & 300 lb. Bradley helve.
Keyseater, No. 3 Baker, cap. 3".
Lathe, 12"x10" Davis tool rm., q. c. g.
Lathe, 14"-28" Fay & Scott gap.
Lathe, 18"x10" W.-B., g. h., s. p. d.
Lathe, 27"x18" Reed, bargain.
Lathe, 30"x12" Boye & Emmes, q. c. g.
Lathe, 48"x48"x19" 8" Betts-Bridgeford.
Lathe, 30"x16" L. & S., q. c. g.
Lathe, 36"x25" W. P. Davis m. d.
Lathe, 36"x34" W. P. Davis, m. d.
Lathe, 18" Libby turret, s. p. d.
Lathe, 21" Gisholt turret, (2).
Miller, No. 2A Milwaukee plain.
Millers, No. 2 Ohio plain, (2).
Miller, No. 3 Cincinnati plain, m. d.
Miller, No. 4 Hendey plain, s. p. d.
Pipe mche., E., C. & B., 24" to 8".
Pipe machine, Merrill, 24" to 12".
Pipe machine, new 2-P. 2" Williams.
Planer, 22"x22"x5" Gray.
Planer, 72"x72"x24" D. & H. open-side.
Planer, 72"x72"x14" D. & H. openside.
Press, No. 3 Adriance o. b. i., 34" str.
Press, No. 5A Toledo, o. b. i.
Press, Ferracut DD2, o. b. i., cam.
Presses, 3P Ferracut (3).
Presses, Nos. 19, 20 & 21 Bliss, new.
Presses, Nos. 3, 4, 5 and 6 Consolidated, new.
Presses, No. 20 Bliss, No. 3 Adriance.
Planer, 24"x24"x8" Powell, 1 head.
Planer, 30"x30"x8" Powell, 1 head.
Planer, 33"x33"x12" Cincinnati, 2 hds.
Punch, Wickes, 48" thrt., cap. 14"x1".
Seamers, Bliss, Leffler & Max Ama.
Shapers, 14" & 20" Ohio single gear.
Shapers, 16", 24" & 36" Gould & E.
Shapers, 24" & 36" G. & E., m. d. b. g.
Shapers, 16" American b. g.
Shear, 10"x14 ga. Bertsch, b. d.

Our warehouse is full of bargains. What have you for sale?

USED AND REBUILT MACHINERY

FOR SALE BY

West Penn Machinery Company

1208 House Building,

Pittsburgh, Pa.

Air comp., 6"x5" Curtia, 49 c. f.
 Air comp., 8"x8" Bury "BB", 79 c. f.
 Air comp., 8"x8" I.-R. ER-1. 138 c. f.
 Air comp., 10x10 I.-R. N-E-1. 179 c. f.
 Air comp., 12x10 I.-R. ER-1. 368 c. f.
 Air comp., Bury, duplex, 815 c. f.
 Automatic, No. 55 Nat. 4-spindle.
 Bolt cutters, 14", 2", 2 1/2", 4" Landis.
 Bolt cutters, 14" 2" Landis, dbl. hd.
 Bolt cutters, 14" Landis, 3hd., m. d.
 Boring mills, vertical, 30" to 16".
 Boring mill, 60" Gisholt, r.p.t., m. d.
 Boring mill, 96" Niles 2 hds.
 Boring mill, 84" Poole, 2 hds.
 Boring mill, 25" Sellers, m. d.
 Boring mill, horiz. 4-spdl., Newton.
 Boring mill, horiz. 3 1/2" bar, Rochester.
 Boring mill, horiz. 6 spdl. Niles.
 Brake, 48"x3/16" Dreis & Krump.
 Brake, 6"x16 ga. Robinson.
 Brake, 8"x3/16" Dreis & Krump.
 Brake, 10"x3/16" Dreis & Krump.
 Brake, press type, 10" 6" Ohl, 10 ga.
 Brake, press, 12"x3" Cincinnati.
 Bulldozer, No. 3 Williams & White.
 Bulldozer, Nos. 25 and 28 W. & W.
 Drills, 14" to 38".
 Drill, No. 3 Colburn.
 Drill, 2-sp. b. b. Elmore, 4", sens.
 Drill, mult., No. 5 Fox, 10-spindles.
 Drill, radial, 5" Prentice, b. d.
 Drill, radial, 6" Prentice, s. p. d.
 Drill, radial, 10" Bausch, m. d.
 Flanger, McCabe, 1" capacity.
 Gear cutters, spur and bevel.
 Gear cutter, 48" Newark, b. d.
 Gear hobber, 78" S. & S. m. d.
 Gear planer, 24" Gleason, bevel.
 Grinder, radial, 14", 220 v. 3-60.
 Grinder, No. 14 Besly, disc.
 Grinder, planer type, 51" Springfield.
 Grinder, face, 84" Diamond, m. d.
 Grinder, surface, 14" Arter.
 Grinder, surface, No. 16 Blanchard.
 Hammer, 65-lb. Champion, upright.
 Hammer, 80-lb. Bradley, cush. helve.
 Hammer, 100 lb. Bradley, upright.
 Hammer, 150-lb. Dupont, upright.
 Hammers, Nos. 2-B, 3-B, 4-B Nasel.
 Hammers, steam 600 lb. to 6000 lb.
 Hammer, 2500-lb. Bement, sgl. fr.
 Hoists, 1 to 3 1/2-ton Shepard, 220 v.
 Keyseater, No. 2 Mitts & Merrill.
 Lathes, 12" to 60".
 Lathe, 16"x6" Hendey.
 Lathe, 16"x6" LeBlond, q. c. g.
 Lathe, Lo-Sw., 34"x60" Fitchburg.
 Lathe, brass, 18"x6" Fox.
 Lathe, roll, 50" United, m. d.
 Lathe, turret, 3"x36" J. & L.
 Lathe, turret, No. 4 W. & S.
 Lathe, turret, No. 6 W. & S., p. l.
 Lathe, turret, 24" Steidle, 6 1/2" hole.
 Lathe, turret, No. 4 Foster.

Miller, duplex, 24" Cincinnati.
 Miller, plain, No. 4 Cinti. 14" d. h.
 Miller, univ., No. 4 B. & S. 12" d. h.
 Miller, slab, 24"x20"x14" Ingersoll.
 Pipe machines, 2" to 12".
 Pipe mche., 3" Jarecki, dies, b. d.
 Planer, 48"x42"x12" Cincinnati, 2hds.
 Planer, 56"x56"x16" Cin. rev. m. d.
 Planer, 72"x72"x20" Bement-M., 4 hds.
 Planer, 96"x96"x18" Ridgway, 4 hds.
 Planer, o. s., 48"x46"x14" D. & H.
 Planer, o. s., 96"x72"x26" D. & H.
 Planer, rotary, 48" Niles, m. d.
 Press, hyd., 50-ton Lourie.
 Press, No. 20 Bliss o. b. i.
 Press, geared, No. 34 Toledo.
 Press, No. 37 1/2 Bliss, s. s., 6" stroke.
 Press, No. 74 1/2 Bliss, s. s.
 Press, No. 78 1/2 Bliss, t. r. 12" stroke.
 Press, No. 94-P Toledo, 42"x198".
 Press, wheel, 150-ton Caldwell.
 Press, wheel, 400-ton Niles.
 Pump, Gould, cent. 400-gals.
 Punch, hor., Cleveland, 1" thru 1".
 Punch & sh., 30" Rock-River 3/4", 4".
 Punch & s., No. 21 L. & A. 12" thrt. arch j.
 Punch, No. 1 L. & A. 30" thr., 1 1/2"-1".
 Punch, No. 5 H. & J. 2 1/2"-1 1/2", m. d.
 Riveter, Hanna, 18" thrt., 18" gap.
 Riveter, Hanna, 36", 70-ton.
 Rolls, angle bend., 2"x2"x3" Bertsch.
 Rolls, angle bend, 3"x3"x3" Buffalo.
 Rolls, bending, 42"x14 ga. Bertsch.
 Rolls, bending, 54"x4" Cincinnati.
 Rolls, bending, 10"x1" Cleveland.
 Rolls, bending, 12"x1" H. & J.
 Saw, metal band, 26" Crescent.
 Saw, friction, Ryerson, Nos. 2 & 3.
 Saw, hack, No. 7 Atkins, 8"x8".
 Saw, hot, 54" Mesta sliding frame.
 Sandslinger, 11" tractor type.
 Shaper, 16", 20" & 24" Gould & E.
 Shaper, 24" Stockbridge.
 Shear, angle, L. & A., 6"x6"x4"
 Shear, alligator, Garrison, 1 1/2" sq.
 Shear, alligator, No. 5 Canton, 3" sq.
 Shear, alligator, United, 6"x6".
 Shear, bevel, Lennox 4".
 Shear, 20"x16" ga. Bliss power.
 Shear, 36"x16 ga. Niagara, b. d.
 Shear, sq. 72"x14 ga. Bertsch, b. d.
 Shear, sq. 8"x3" Stoll, m. d.
 Shear, sq., 10"x3" Morgan, 24" gap.
 Shear, 12"x14 ga. Peerless, 95 1/2 new.
 Shear, plate, 10"x1" H. & J. No. 4.
 Shear, plate, 144"x1 1/2" H. & J. No. 7.
 Shear, plate, United, 156"x1 1/2".
 Shear, rotary, No. 6 Quickwork.
 Slotter, 18" Betts, b. d.
 Straightening rolls, Brightman 1"-4".
 Straight'r, 48" United, 16 ga. 13 rolls.
 Straightener, Nat. 60"x14 ga. 17 rolls.
 Straightener, beam, No. 4 H. & J. m. d.
 Swaging machine, No. 3 Langelier.

USED AND REBUILT MACHINERY

FOR SALE BY

E. L. Klauber Machinery Co., 320 South Third St., St. Louis, Mo.

Band saws, 14" motor drive.
Bench drills, motor drive, 110 volt.
Drill presses, 10" to 34".
Drop press, 200 lbs. power lift.
Gear hobber No. 000, S. & S.
Gear miller, automatic, 4" cap.
Grinders, Greenfield cutter & tool.
Grinder, No. 2 Garvin hole.
Grinders, disc, motor drive.
Grinders, electric bench, $\frac{1}{2}$ h. p. 110 volt a. c.
Lathe, 15x6 Carroll-Jamieson q.c.g. d. b. g.
Lathe, 15x6 South Bend.
Milling machine, No. 4 Cincinnati plain, all geared, single pulley dr.

Milling machine, Knight No. 14.
Polisher, St. L. No. 7, roller bearing.
Presses, 30 ton Southwark, hydr.
Punch and shear, No. 18 Williams & White.
Screw mches, $\frac{1}{2}$ " Cleveland auto. (3).
Screw machine, Gridley $1\frac{1}{2}$ ", 4-sp.
Screw machine, No. 56 National Acme 4-spindle.
Tapping machine, No. 6 St. Louis.
Tapping mach. $\frac{1}{2}$ " Montgomery h. s.
Tapping machine, No. 2 St. Louis.
Tapping mche., No. 1 Garvin auto.
Turret lathe, Wood tilted turret, 1".
Welders, butt and spot 15 k. w.

FOR SALE BY

Randle Machinery Co.,

1733 Power St., Cincinnati, Ohio

Air compressor, $7\frac{1}{2}$ x6 Chicago, nsb.
Air compressor, 8x8 Penna.
Air compressor, 9x8, 10x10 & 12x10 I-R.
Bending rolls, 62x3/16" Badger State.
Bending rolls, 7"x4" cap. H. & J.
Bending rolls, 6" & 8"x4" H. & J.
Bending rolls, Nos. 8 and 9 Bertsch, motor drive.
Bolt cutter, 14" Acme.
Bolt cutter, 4" Acme, m. d.
Boring mill, 36" Bullard. r. p.
Boring mill, 42" Niles r. p.
Boring mill, 51" Niles.
Boring mill, 60" & 72" Bullard.
Boring mill, 84" & 96" Niles.
Brake, 4"x10 Robinson.
Brake, 8"x10 ga. Robinson. m. d.
Brake, No. 4109 D. & K. press.
Brake, 8"x16 ga. Robinson.
Brake, 10"x16 ga. D. & K.
Drill, 24" 26" upright.
Drill, 3" Cincinnati-Bickford.
Drill, 3" Fosdick.
Drill, 34" Fosdick, m. d.
Drill, 4" Bickford.
Drill, 44" Morris, m. d.
Drill, 3" American, triple purpose.
Gear cutter, Nos. 1 & 3 Farwell.
Gear cutter, No. 18-H G. & E.
Gear cutter, Nos. $\frac{1}{2}$ & 2 S. & S.
Hack saw, 6x6 Racine or Peerless.
Hack saw, 6x6 Peerless universal.
Hack saw, 9x9 Peerless m. d.
Keyseater, Nos. 1 & 2 Davis.
Keyseater, No. 3 M. & M.
Keyseater, No. 34 Baker.
Lathe, 16"x6" L. & S. q. c.
Lathe, 16"x6" P. & W. tool room.
Lathe, 14"x8" L. & S. selective head.
Lathe, 19"x10 LeBlond q. c.

Lathe, 31"x12 LeBlond q. c.
Lathe, 26"x16" American.
Lathe, 25"x14" LeBlond.
Lathe, 22"x19" American grd. head.
Lathe, 27"x20" L. & S. q. c.
Lathe, 36"x15" L. & S. selective.
Lathe, 37"x17" Schumacher & Boye.
Lathe, 36"x26" Wickes semi-q. c.
Lathe, 37"x26" Putnam m. d.
Miller, No. 3B K. & T.
Miller, No. 4B K. & T.
Miller, No. 34 Oesterlein.
Millers, Nos. 2 and 3 LeBlond.
Miller, No. 2 Cincinnati universal.
Press, No. 8-A Bliss.
Press, No. 19 Bliss.
Planer, 48"x48"x14" Gray, 4 heads.
Planer, 60"x60"x10" Pond, 3 heads.
Planer, 30"x30"x10" Hendey, 2 hds.
Planer, 24x24x8" American, 2 heads.
Planer, 72"x72"x18" D. & H., m. d.
Planer, 72"x72"x20" Sellers 4 heads.
Planer, 72"x72"x20" Ridgway, 4 hds.
Pipe machine, 8" Williams m. d.
Pipe machine, 12" B. & K., m. d.
Pipe machine, No. 54 Merrill.
Pipe machine, 12" Curtis.
Shaper, 14" and 18" Steptoe.
Shaper, 22" American, b. g.
Shaper, 24" Queen City b. g.
Shaper, 25" S. & M., m. d.
Shear, No. 27 U Buffalo m. d.
Shear, No. 4 L. & A. univ. m. d.
Shear, No. 65 Niagara circle.
Squaring shear, 42"x18 ga. Niagara.
Squaring shear, 6"x10 ga.
Squaring shear, 8"x16 ga. Bertsch.
Turret lathe, No. 3 Acme univ.
Turret lathe, No. 2 P. & W.
Wheel press, 150 ton Caldwell m.d.;
125 ton and 200 ton capacities.

Also many other tools of various sizes and types. Send us your inquiry.

USED AND REBUILT MACHINERY

FOR SALE BY

Scott-Bansbach Machinery Co., 130 So. Clinton St., Chicago, Ill.

Auto. screw mach., Cincinnati, 5-spindle, 4"	\$ 500.
Auto. screw mach., 14" Gridley 4 spindle model F	1,150.
Auto. screw mach., 24" Gridley 4 spindle model F	2,500.
Auto. screw mach., Cleveland, 4", Model A	150.
Auto. screw mach., Cleveland 3 1/2" Model A, square pan	750.
Auto. screw mach., Cleveland 3 1/2" Model A, square pan	850.
Bolt cutter, 2" D. & H., double head	300.
Boring mill horiz. 4" Rochester floor type, rot. table, m. d., r. p. t.	4,500.
Centering machine, Whiton swivel	75.
Drill, 21" Cincinnati sta. head, with tapping attachment	200.
Drill, 24" Rockford sliding head	150.
Drill, 26" Superior, sliding head, back geared	325.
Drill, 1-spindle Allen h. s., b. b., 14" with pump	175.
Drill, 4-spindle Barr, plain bearing	225.
Drill, radial, 3" American sensitive	200.
Drill, 20"-2 spindle Hoefler power feed	250.
Filing machine, Cochrane-Bly, floortype	100.
Grinder, 24" Diamond disc, with disc and ring wheel	300.
Grinder, 26" Valley City disc	250.
Grinder, No. 65 Heald, with fixtures, b. b. spindle	900.
Grinder, No. 1 1/2 Cincinnati cutter and tool	450.
Grinder, No. 3 Norton universal cutter & tool, p. f.	450.
Grinder, No. 11 B. & S. plain 6"x32"	400.
Grinder, 12"x48" Modern plain, self contd., c/s	600.
Grinder, Landis 16"x42" plain, 24" wheel	1,000.
Grinder, 12x12x48 Springfield Brandes mag. chuck & segment wheel	2,000.
Hammer, 50 lbs., No. 1 Standard drop	150.
Hammer, No. 5A High Speed riveting	400.
Lathe, 14"x8' Flather, quick change, taper and chuck	250.
Lathe, 18"x9' Chard semi-quick change gear	400.
Lathe, 19"x11' Chard, semi-quick change gear	425.
Lathe, 22"x12' Davis quick change, d. b. g.	800.
Lathe, 42"x20' Fifield with blocks to swing 60"	1,000.
Miller, Whitney, Standard and U. S., hand	125.
Miller, No. 1 Garvin universal, fully equipped	600.
Miller, No. 3B B. & S. heavy duty, all geared head, s. p. d.	2,000.
Miller, Briggs, G. & E. manufacturing, 16"	200.
Miller, No. 5 Becker vertical, no rotary	500.
Miller, No. 7 Becker, Lincoln type	150.
Miller, No. 21 Garvin power feed, oil pump	150.
Miller, Hendey, Lincoln type	100.
Miller, No. 12 Brown & Sharpe production type	150.
Miller, Ingersoll slab, 42"x36"x8"	1,750.
Oil separator, National, about 1/2 bushel	75.
Planer, 24"x24"x8' Cincinnati, 1 head	500.
Planer, 24x24x8 Fitchburg, 1 head	400.
Planer, 32x32x8 Pond, 1 head	750.
Planer, 36"x36"x12' Cincinnati with 2 heads	1,500.
Press, No. 5 R. & K. o. b. i., 5500 lbs.	525.
Press brake, 10' Ohl gauge, No. 10 gauge	1,800.
Saw, 6x6 Peerless h. s., d. c. motor \$150, a. c. motor	175.
Saw, Racine metal band, nearly new	175.
Screw machine, P. & W. 4x4, complete	150.
Screw machine, No. 7 Foster 24", p. f. f. h.	750.
Shaper, 16" Steptoe, crank, back geared, vise and c/s	425.
Shaper, 16" Smith & Mills, back geared vise and countershaft	450.
Shaper, 20" Steptoe, crank, back geared, vise and c/s	500.
Shaper, 20" Cincinnati, crank, back geared, vise and c/s	850.
Shaper, 20" Ohio, crank, back geared, vise and c/s, nearly new	1,000.
Shaper, 25" Steptoe, crank, back geared, vise and c/s	750.
Shaper, 24" Rockford universal combination	1100.
Slotter, 12" Putnam universal	1,000.
Turret lathe, No. 7 Foster for chuck and bar work	750.
Turret lathe, 24" Steinlee, 4" hole, side carriage	700.

USED AND REBUILT MACHINERY

FOR SALE BY

Foster Machinery Company, 2613 E. 73rd St., Cleveland, Ohio

SHEARS.

12'x14 ga. Loy & Nawrath.

Canton alligator, cap. 14' sq.

MISCELLANEOUS.

Brake, 6', 10 ga., box and pan
Drill, 18-spindle No 4 Bausch.
Drill, radial, 34' Bickford.
Pipe machine 2" Jarecki.

Upsetter, 24" Acme (steel).
Riveters, Nos. 2-A and 3-A High
Speed, heavy duty.
Welder, butt, 2" round.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 N. 12th St.,

St. Louis, Mo.

PRESSES.

No. 14 Bliss toggle press.
No. 34 Bliss toggle press.
No. 14 Bliss toggle press.
No. 63 Toledo toggle press.

No. 25 Toledo double acting cam
drawing, geared.
No. 24 Toledo double acting cam
drawing, fly wheel.

PIPE & BOLT THREADING MACHINES.

24" to 6" Bignall & K. pipe mche.
3" Bignall & Keeler pipe machine.
6" Jarecki pipe machine.
8" Williams pipe machine.

12" Bignall & Keeler pipe machine.
14" Standard bolt threader.
3" Acme bolt threader.

SCREW AND TURRET MACHINES.

No. 6-A Potter & Johnston. (2)
No. 5-A Potter & Johnston.
2" Warner & Swasey hollow hex.
No. 6 Warner & Swasey cone head.

3"x24" J. & L., geared head.
3"x26" J. & L., geared head.
34" Acme flat turret (2).

BORING MILLS.

4" Niles horizontal.
34" Gisholt turret head, motor dr.
10' Niles vertical, 2 heads.
42" Niles, 3 heads.

54" Niles, 2 swivel heads.
60" Morton Poole, 2 swivel heads.
No. P. & H. boring and drilling
machine.

PLANERS.

24"x24"x8' Pond.
32"x32"x14' Flather.

48"x30"x16' Gray.
42"x42"x26' Wheeler.

SHAPERS.

16" Steptoe b. g. crank.
20" Steptoe plain crank.

24" Barker crank.
24" Hollingsworth.

DRILLS.

22" Barnes back geared.
25" Barnes back geared.
32" Prentice sliding head.
3' arm Drees radial.

42" arm Morris radial.
4' arm Bickford.
4' arm Drees single pulley.

MILLERS.

No. 2 Cincinnati with vertical attach.
No. 4 Cincinnati with vertical attach.
No. 3 Owen plain.

No. 3 Rockford hand.
Hendey, Lincoln.
No. 2 LeBlond universal.

LATHES.

15"x10' Cisco, q. c. g.
16"x10' Sidney, q. c. g.
24"x10' LeBlond.
24"x16' Lodge & Shipley.
24"-42"x14' McCabe, 2-spindle.

27"x14' Greaves & Klusman.
30"x13' H. S. & G. with taper att.
34"x18' Greaves & Klusman.
60"x12' New Haven turning.

MISCELLANEOUS.

Bulldozer, No. 9.
Furnaces, cyanide hardening.
Gear cutter, 36" Cincinnati.
Grinder, 12"x40" B. & S. univ.
Grinder, 14"x66" Landis.
Punch & shear, 25" throat, 4" in 4"

Punch & shear, No. 15 Williams.
White, 20" throat.
Shear, Lennox, rotary bevel.
Swager, No. 1 Dayton.
Swager, No. 6 Aetna.

USED AND REBUILT MACHINERY

FOR SALE BY

The Reeve-Fritts Co., 558-560 W. Washington Blvd., Chicago, Ill.

Die filer, No. 3 Barry.
Drill, 14" Leland h. s.
Drill, 16" Sipp b. b.
Drill, 20" Champion b. g. p. f.
Drill, 4-spdl. Foote-Burt 4" cap.
Drill, 4 spindle Fox, 4" cap.
Drill, 6 spindle Henry & W. h. s.
Gear cutter, No. 98 G. & E. spur & b.
Lathe, 9x20" Porter-Cable prod.
Lathe, 12"x5" Pratt & Whitney.

Miller, No. 2 Rockford, plain.
Miller, No. 3 Chicago hd. & power.
Planer, 24"x24"x8' Rockford.
Planer, 24"x24"x8' American.
Press, No. 1 Massillon s. s.
Press, No. 3-P Am. Can solid bk.
Press, No. 0 LaSalle bench.
Screw machine, No. 2 Foster pl. hd.
Shaper, 16" Steptoe b. g.
Turret lathe, 24"x26" Pratt & Whitney

FOR SALE BY

Norton-Broadway Mch. Co., Sixth & Baymiller Sts., Cincinnati, O.

LATHES.

36"x20' Bradford, triple geared.
32"x19' Wickes, double b. g.
30"x16' American, q. c.
30"x14' Prentice q. c.
27"x14' Pond, q. c.

13-26"x14' Putnams, semi-quick.
24"x14' Lodge & Shipley, q. c.
28"x10' Boye & Emmes, q. c.
19"x10' LeBlond q. c.
20"x10' Bradford, loose change.

MILLING MACHINES.

No. 2 1/2 & 3 LeBlond plain.
26" Oesterlein universal.
No. 3 H LeBlond heavy duty, plain.
No. 6 Becker vertical.
No. 12 Brown & Sharpe plain.
No. 13 Brown & Sharpe, plain.

No. 4B Brown & Sharpe heavy duty.
No. 4 Cincinnati universal.
No. 4 Cincinnati vertical agl. pul.
No. 3 Brown & Sharpe, vertical.
No. 12 Pratt & Whitney, Lincoln type
Owen two-spindle.

BORING MILLS.

24" Bullard New Era type, serial 11469.
36" Niles, 2 heads.
34" Bullard, 1 head.

42" Gisholt, 2 heads.
50" Niles, 2 heads.
6" Gray horizontal.

PLANERS.

24"x24"x8' Ohio.
24"x24"x 8' Pond, 2 heads.
24"x24"x 8' Putnam, 1 head.
32"x32"x 8' Gray, 2 heads.
30"x30"x 16' Gray, 2 heads.
32"x32"x16' Whitcomb, 2 heads.

48"x16' Detrick & Harvey, open side
48"x10' Belmer, 4 heads.
48"x16' Cincinnati, 4 heads.
24"x 8' Smith & Silk, 1 head.
Whitcomb crank planer.

DRILLS AND RADIALS

4-spindle Kokomo, 12" overhang.
3-spindle Henry & Wright, 7".
4-spindle Reed sensitive.
3-spindle Reed sensitive.
6-spindle Reed sensitive.
3' American single pulley, gear box.

3' Morris, single pulley, gear box.
34' Mueller, single pulley.
44' Morris radial, arr.m.d., with mtr.
5' American, semi-univ., agl. pulley.
5' universal, old style.
6' American plain radial, agl. pul. dr.

MISCELLANEOUS.

Air compressor, 600' Ingersoll, 2 stage
Automatics, Model B Cleveland (2).
Bending brakes.
Bolt cutter, 2-sp. Acme 1 1/2".
Drill 28" Aurora, tapping att.
Gear hobber, Cincinnati.
Grinders, Nos. 4 & 120 Gardner disc.
Hack saw, 10" Massachusetts.
Hammer, Bradley helve.
Hammers, Bradley strap.
Presses, Toledo, Long & Allstater
& Losbough & Jordan inclinable.

Press, 50 ton Lucas forcing.
Press, No. 62 Bliss power.
Press, 150 ton Caldwell wheel.
Punch and shear No. 3 H. & J. d. e.
Shears, 6' 8", 10' power.
Shear, No. 252 Niagara pwr., 6' cap.
Slotter, 20" Dill.
Threading mche., Auto. Mch. Co.
Turret, No. 3-A Warner & Swasey.
serial 100,756.
Turret lathe, No. 4 Warner & S.

More than 300 machine tools in stock.

USED AND REBUILT MACHINERY

FOR SALE BY

Arthur P. Gockel,

1817 E. 26th St., Cleveland, Ohio

Bending roll, 16' of 4" cap.
Oven, japanning, rack type, gas fired.
Planers, plate, 8 and 30' size.
Press, No. 19 Bliss, o. b. i., m. d.
Press, No. 6 s. s. Rock'd grd., 4" str.
Press, No. 4 Toledo, o. b. i., 2 1/2" st.

Press, Cleveland, rack & pinion.
Shear, No. 2 H. & J. guillotine, cap.
2 1/2" round.
Slitter, Yoder, gang No. G36 cap. 5
cuts in 11 gauge, motor drive,

FOR SALE BY

W. P. Little Co.,

W. 9th & Front St., Cleveland, O.

LATHES

19"x8' LeBlond production.

24"x10' LeBlond d. b. g., q. c. g.

18"x8' Lodge & Shipley pat. head.

16"x8' Prentice, taper attachment.

RADIAL DRILLS

4' Morris gear box, m. d.

4' Prentice gear box drive,

PRESSES

Style G Cleveland on turntable.

36" Ohl press brake.

Metalwood hydro-pneumatic.

East Iron Wks. open back.

MISCELLANEOUS

Drill, Barnes 4-spindle.

Drill, Barnes 3-spindle.

Gear cutter, 30" Whiton.

Hack saws, Marvel Nos. 4 & 5.

Hack saws, Atkins Kwikut.

Miller, 28" Cincinnati face.

Pinion cutter, Standard automatic.

Pinion cutter, Bilton automatic.

Planer, 32"x32"x14' Pond.

Power hammers, Beaudry 75 lbs.

Riveter, Shuster 1/2" and 3/4".

Splitting shear, S 24 Yoder.

Splitting shear, D 22 Rock River.

Tumbling barrel, Hoevel sand blast.

Partial list. 150 other tools on hand. Send us your inquiries.

FOR SALE BY

Brownell Machinery Co.,

150 Pine St., Providence, R. I.

BORING MILLS

36" Bullard new era, serials 9900 to 11,100 (9).

42" Bullard vertical.

DRILLS.

5' Prentice radial.

23" Snyder, b. g., p. f.

21" Buffalo, new.

20 1/2" Buffalo, new.

20" 4-spindle W. F. Barnes.

GRINDERS.

No. 11 Brown & Sharpe, 4x30.

No. 3 B. & S. cutter and reamer.

C-2-T Grand Rapids drill.

No. 1 B. & S. surface.

20" Whitney wet tool.

No. 26 B. & S. plain.

Walker tool.

MILLING MACHINES

3-No. OY Brown & Sharpe plain.

4-No. O Brown & Sharpe plain.

1-No. 2 Brown & Sharpe plain.

1-No. 13-B Brown & Sharpe.

PLANERS & SHAPERS

26xx26"x6' Whitcomb, 2 heads.

24"x24"x6' Pond.

17"x17"x4' Whitcomb.

SCREW MACHINES.

16" Warner & Swasey, turret lathe, g. f. h.

No. 4 B. & S. hand screw machine.

No. 0 B. & S., wire feed, hand screw machines.

MISCELLANEOUS.

Band saw, 12" Houghton & Richards
metal cutting.

Blower, No. 8 Boland.

Cornice brake, 4' double truss.

Gear cutter, No. 2 1/2 Bilton.

Index heads, 10" tilting, milling mch.

Index centers, planer.

Millers, U. S. hand No. 1.

Press, standard power screw 7".

Press, No. 1 Bliss d. a. cam.

Woodworking, Tannewitz double
arbor saw table.

Woodworking, Towsley 36" band saw.

USED AND REBUILT MACHINERY

FOR SALE BY

John Ramming Machine Co., First St. & Clark Ave., St. Louis, Mo.

Boring mills, 60" Colburn; 42" Bullard.

Drill, No. 513 Baker.

Gear shapers, 36" Fellows, (2).

Grinders, 10"x22" Norton, (2).

Lathe, 26"x48"x20" McCabe, double spindle.

Lathe, 16"x9" Lehman, geared head, motor driven, q. c. g.

Partial list only. We will be pleased to receive your inquiries.

FOR SALE BY

W. H. Hobbs Supply Co., Eau Claire, Wis.

Gear cutter, Reynolds 12" capacity.....\$ 175.

Gear hobbing machine, special, will cut spur, bevel and mitre gears, complete with countershaft.....1,250.

Lathe, gap, special, 84" swing, geared head with variable speed and countershaft.....1,000.

Miller, No. 4 Cincinnati plain, 16"x60" slotted table, complete with 220 volt d. c. variable speed motor.

FOR SALE BY

Strafer Machinery Company,

14th and Provost St.,

Jersey City, N. J.

BORING MILLS VERTICAL

14' Niles heavy, swing 15' 4".

10' Betts motor drive.

96" Cincinnati rapid traverse, m. d.

76" Pond heavy 5 step cone, b. d.

72" Betts heavy rapid traverse.

Portable boring bars, Underwood, 4"x8" with 12" heads, grd. feed \$200 each.

DRILLS.

6' American universal, speed box.

5' Prentice speed box drive.

3 1/2' Dreses, speed box, s. p. d.

22" Barnes upright.

32" Aurora upright.

20" Prentice upright.

GEAR CUTTERS

No. 5A Lees-Bradner hobber.

No. 13 Brown & Sharpe spur & bev.

GRINDERS.

12x20 Fitchburg plain.

18"x120" Norton plain.

24"x144" Landis plain.

8"x40" Morse plain, new.

LATHES.

42x36" American grd. hd., m. d.

18"x8" Fairbanks 3-step c., d. b. g.

42"x14" Bridgeford g. h., q. c.

36"x14" Bridgeford g. h., q. c.

22"x10" Draper cone.

18"x8" Fay Scott 3 s. c., d. b. g.

MILLING MACHINES.

No. 3 Kearney Trecker s. p. d.

22"x10" slab miller.

No. 3 Pedrick & Ayers plain.

No. 1 Brown & Sharpe belt feed.

PIPE MACHINES.

6" Saunders, new dies, belt drive

8" E. C. & B. with dies, b. d.

PLANERS.

10'x10'x30' Niles 4 heads b. d.

42"x8" D. & H. openside 3 heads.

PUNCHES AND SHEARS.

No. 3 H. & J. 36" t., double.

Cleveland 24" t., cap. 1"x1".

No. 4 H. & J. double 48" t.

10'-3/16" Loy & Nawrath squaring.

MISCELLANEOUS.

Reading machine, Bliss.

Bending roll, capacity 8"x3".

Centering machine, P. & W. 3".

Compressor, Ingersoll-Rand 8"x6".

Die slotter, Fox.

Elevator, d. c. m., portable.

Generator, 100 k. v. a. Diesel engine.

Hammer, 400 lb. Chamber. steam.

Lathes, Oliver pattern makers.

Miller, Burr spline.

Roll, 30" tinsmith.

Rotators, 5 and 10 ton.

Ship augers, 500.

Slotter, 24" Niles.

Straightener, wire core, to 5/16".

Trucks industrial storage battery.

USED AND REBUILT MACHINERY

FOR SALE BY

United Mchry. & Supply Co.,
Grinder, Heald 8", magnetic chuck
No. J 156.
Miller, No. 3 Brown & Sharpe pl.
Miller, No. 2 LeBlond plain.
Rail drill, Pond 2-spindle.

1241 Walton St., St. Louis, Mo.
Rolls, 8' and 6' drop end.
Rolls, 45" corrugating.
Sand mixer, 8' pan.
Sand mixer, No. 2 Simpson.
Wheel lathe, 24" Cincinnati.

FOR SALE BY

The O'Brien Machinery Co.,
Drill, 6' American univ. radial.
Drill, 32" Aurora, motor driven.
Drill, 30" Snyder sliding head.
Gear cutter, 36" Becker-B. auto.
Gear cutter, No. 24 Whiton, belt dr.
Grinders, 3 h. p., d. c., dbl. end, (5).
Grinder, 12" x 36" Cincinnati univ.
Grinder, No. 2 Norton universal.
Hammer, 2000 lbs. Chambersburg,
double frame, steam forging.
Hammer, 1100 lb. N. B. P., sgl. fr.
Hammer, 100 lb. Little Giant, belt.
Lathe, 36" x 18" Schumacher & Boye,
triple geared.
Lathe, 26" x 48" x 14' McCabe 3-in-1,
belt.
Lathe, 30" x 30" Harrington.
Lathe, 28" x 26" L. & S., b. d., q. c. g.
Lathe, 26" x 30" Pond, with motor.
Miller, Newton duplex, planer type,
table 21" x 12".
Miller, No. 4 Brown & Sharpe plain.
Miller, No. 4 LeBlond h. d., plain.
Milling mch., No. 3 Garvin duplex.
Pipe machine, 2" Landis, belt.

113 N. Third St., Philadelphia, Pa.
Pipe machines, Oster portable, gas,
drive, all sizes.
Pipe machines, 2", 4", 6", 8" & 12"
Oster, Cox, Williams, Eaton-Cole
& Burnham and Jarecki makes,
belt or motor driven, comp. stock.
Planer, 36" x 36" x 24', Bement, 4 hds.
Planer, 36" x 36" x 12' Cincinnati, 2 hds.
Press, No. 73½ Bliss trimming press.
Press, No. 37 Niagara, 1100 lb. fly-
wheel, solid back.
Punch, No. 14 H. & J. 30" thrt., 4x
Punch, No. 1 Koyersford double end,
4" x 8".
Rolls, 14' bending, belt, drop end,
rolls 9" and 8".
Saw, 16" Higeley cold, cap. 4".
Saw, 30" Espen-Lucas, cap. 8".
Shaper, 16" Ohio, single grd. crk.
Shaper, 18" Cincinnati, one travel-
ing head, 2 tables.
Shaper, 23" Queen City, b. g. crk.
Shear, Niles, plate splitting, 1" cap-
acity, motor driven.

FOR SALE BY

Clinton Machinery Co., 126-128 S. Clinton Street, Chicago, Ill.
Arbor press, Hercules 15 ton power.....\$ 250.
Bolt cutter, 1" Landis with dies.....250.
Bolt cutter, 2" Standard with dies.....200.
Boring mill, 34" King rapid power trav. feeds with chuck 98% new.....2000.
Drill, 20" 2-spindle Hoefler power feed.....125.
Drill, 24" Barnes & Prentice sliding head, back geared power feed each.....125.
Drill, 42" Barnes sliding head, back geared power feed (2), each.....200.
Drill, No. 1 Knight milling and drilling.....175.
Grinder, 6" x 32" Norton cylindrical.....300.
Grinder, No. 14-30 Besly disc. with press.....300.
Hammer, 30 lb. Bradley compact motor drive.....200.
Hammers, No. 14-3A-4A-5A high speed riveting.....
Hack saw, 6x6 Racine & Peerless high speed, each.....100.
Hack saw, 9x9 Peerless high speed.....300.
Lathe, 24" x 5' American geared head s. p. d. q. c. g. with turret.....850.
Lathe, 14" x 12" Monarch geared head motor drive with motor.....450.
Millers, No. 2 Cleveland universal s. p. d., like new.....1200.
Miller, No. 14 American plain.....550.
Press, No. 61 Bliss, s. s. reducing, 4" stroke.....225.
Press, No. 58 Bliss, straight side reducing 2½" stroke.....175.
Shaper, 24" American back geared complete.....700.
Shaper, 15" Potter & Johnson complete with universal table.....500.
Turret lathe, No. 3 Wood tilted p. f. to turret. (4) 95% new, each.....325.
Just a partial list, large stock on hand, send us your inquiries.

USED AND REBUILT MACHINERY

FOR SALE BY

A. M. Stoshr Machinery Co.

106 S. Jefferson St., Chicago, Ill.

Air compressor, Chicago Pneumatic, 22x14x16, with 150 h. p. slip ring motor.

Balancing machine, Gisholt precision.

Bolt cutter, 3-sp. Acme, 1" cap.

Drills, 6" American triple purpose.

Hammers, power (7).

Keyscater, No. 2 Mitts & Merrill.

Miller, No. 24 Rockford plain, vertical attachment.

Presses, Michigan Nos. 4, 5 & 65.

Punch, & shear, No. 3 Southwark, E. F. Cleveland and others.

Punch & riveters, Rock River & Kling.

Separators, oil, No. 3 National, No. 1 Springfield.

Wire straighteners, up to 3" cap.

FOR SALE BY

C. C. Howarth Co.,

1457 Franklin St., Detroit, Mich.

"A Dollar for a Dollar"

Automatics, No. 6-A P. & J., serial numbers above 18,000 (5).

Automatics, No. 24 New Britain, (2)

Drill, No. 64 D Moline.

Gear cutters, No. 4 Brown & Sharpe 48" (2).

Gear cutters, No. 4 Brown & Sharpe 38" (3).

Gear cutter, No. 3 Brown & Sharpe 26".

Gear cutter, No. 12 Barber-Colman.

Generators, No. 5-A Lees-Bradner 14", (2).

Grinder, Landis 10"x72", s. c. t.

And about 200 other high grade machines.

FOR SALE BY

M. A. Wertman Machinery Co., 427 Penton Bldg., Cleveland, Ohio

Air compressor, Ingersoll-Rand 9"x8 plate valves.

Brake, 8"x16 gauge Robinson power brake.

Broach, No. 3 J. N. La Pointe double, like new.

Bolt cutters, 1 1/2" Acme single, rebuilt—(2).

Drill, radial, 3 1/2" Western, heavy duty, single pulley drive.

Drill, radial, 4" Hammond sensitive, tapping attachment s. p. d. or m. d.

Drill, Demco, ball bearing sensitive 12000 r. p. m. bench type.

Forging machine, 1 1/2" Acme, iron frame, fine condition.

Grinder, Landis, 10"x72" self contained motor drive excellent condition.

Hammer, No. 3A High Speed riveting m. d.

Hammer, Bradley 500 lb. upright helve, guaranteed good as new.

Hammer, Beaudry, 200 lb., used very little, belt drive.

Miller, U. S. hand miller No. 1.

Milling machine, Brown & Sharpe No. 3 plain, power quick traverse table.

Milling machine, Milwaukee, No. 2A mfg. type, single pulley drive.

Milling machine, Garvin No. 2 duplex.

Milling machine vertical attachment for No. 3 Kempsmith miller.

Polishing lathes, double end ball bearing, (5).

Polishing machine, Blevney vertical, belt polishing machine.

Press, Ferracute No. P3 punching press, excellent condition, weight 3600 lb.

Press, Cleveland No. 34 punching press, excellent condition, weight 5000 lb.

Press, Cleveland No. 52 s. s. trim. with side shear, new condition.

Press, Cleveland No. 6-I, o. b. i. brand new, weight 3300 lb.

Press, Toledo No. 3 o. b. i. geared, 44" stroke, weight 2300 lb.

Press, Minster No. 2 o. b. i., new, never used, weight 1450 lb.

Thread miller, Coulter hob thread miller, perfect condition.

Turret lathe, 28" Gisholt complete with tools.

Turret lathe, 24" Gisholt motor driven, 6 1/2" hole thru spindle.

Turrets lathes, Warner & Swasey, No. 6 g. f. h. (2).

Welder, Federal 10 k w spot welder, 220 volt a. c., new condition.

USED AND REBUILT MACHINERY

FOR SALE BY

Doron Bros. Electric Co.

325 North B Street, Hamilton, Ohio

Air compressor, Curtis No. 40.
 Drill, Meyers 16" column.
 Drill grinder, pedestal, New Yankee.
 Lathe, 11" Seneca Falls with complete attachments.
 Lathes turret, Garvin No. 1.
 Screw machines, automatic, Acme No. 52.
 Screw machine, automatic, Cleveland 1-1/2".
 Screw machine, automatic, Cleveland 1 1/4".
 Oil extractor, centrifugal.
 Tapping machines, 3/16" Rickert & Shafer (2).
 Tapping machines, 5/16" Rickert & Shafer (2).
 Many of the above carry a large assortment of extra tools.
 Office and shipping room equipment.

Send for list,

FOR SALE BY

Miles Machinery Co.,

Saginaw, W. S., Mich.

Automatics, Nos. 5A & 6A P. & J.
 Compressor, 12"x10" Ingersoll-R.
 Drill radial, 6" N.-B.-P. universal.
 Drill, mult., 34-spd. Natco No. 30.
 Drill, rail, No. 3 Foote-Burt, 8-spd.
 Drill, sensitive, 2, 3 & 4 spd. Allen.
 Gear cutter, 60"x20" G. & E.
 Grinder, surface, No. 2 W. & M.
 Grinder, 18"x96" Norton.
 Hammer, 600 lb. N.-B.-P. steam.
 Keyseater, 24", No. 4 Mitts & M.
 Lathe, 12"x6" Hendey.
 Lathe, 20"x8" LeBlond.

Lathe, 36"x18" Schumacher & Boye.
 Lathe, 52"x16" Pittsburgh.
 Mill, horiz., 2 1/2" bar Cleveland.
 Mill, boring, 96" Betts.
 Miller, 40" Ohio tilted rotary.
 Miller, No. 4 Cincinnati high pwr.
 Planer, 42"x36"x16" Cleveland o. s.
 Planer, 48"x48"x10" Liberty.
 Planer, 72"x72"x16" Pond.
 Press, No. 2 1/2 V. & O. o. b. i.
 Press, Nos. 64 and 65 Consolidated.
 Slotters, 14" and 18" Niles.
 Threaders, 2", 2 1/2" and 3" Acme.

FOR SALE BY

Brown Machinery Co.,

2323 N. 9th St., St. Louis, Mo.

Bowers, Nos. 3, 7 and 9 Sturtevant.
 Broach, No. 1 La Pointe.
 Drills, Barnes 20" with tappg. attmt.
 21" C-O & Champion; 22" Barnes;
 25" American; 24" & 32" Mechanics.
 Drill, multiple, No. 66-D Moline
 "Hole Hog".
 Drills, radial, 4" Bickford; 3' Prentice.
 Gear hobber, G. & E. No. 1716.
 Grinder, edge, No. 302 Safety
 Emery Wheel Co.
 Grinders, emery, St. Louis & W.;
 large stock new at 50% disc.
 Grinders, disc, No. 6 Bealy; No. 202
 Badger.
 Grinders, drill, W. & M; G.R. B&T.
 Grinders, plain, 10x36" Norton;
 8x36" B. & S.; 12x36" Modern.
 Grinder, universal, No. 12 B. & S.
 Hammer, helve, 40 lb. Bradley; No.
 2 Pettingell.
 Lathes, turret, 16" Gisholt, Omar,
 Foster, J. & L.

Lathes, No. 5A Potter & Johnston.
 Lathes, 16" Monarch; 18" Lodge &
 Shipley; 26" Putnam; 30" Blaisdell.
 Millers, No. 4 Hendey; No. 0 1/2
 LeBlond; No. 2 Hendey Norton,
 universal; No. 7H Becker.
 Planer, 42"x42"x10" Pond.
 Press, arbor, No. 3 A Geier.
 Presses, o. b. i., Niagara 4 1/2".
 Presses, hydraulic, 36x72" Elmes.
 Press, hydraulic, Lourie 200 ton.
 Profilers, Putnam; Reed-Prentice.
 Riveters, No. 2 Grant; No. 4-V-3
 Grant, mr. dr.
 Shaper, 14" Barker 12"; Whipp.
 Shears, rotary splitting, No. 134
 Marshalltown 4" thrt.; 4" cap.;
 No. 13 Pettingell.
 Shear, square, 372 Pexto, 10 ga.;
 power.
 Welders, spot, Agnew 1/2" capacity.

And many others. Write for list 130.

USED AND REBUILT MACHINERY

FOR SALE BY

H. L. Morton Machinery Co., 1078 Carlyon Road, Cleveland, Ohio

Die sinker, Keller automatic E-2, (new).....	\$2,900.
Drill, Sigourney 2-spindle, No. 1 taper.....	85.
Drill, Champion 20", back geared, power feed.....	95.
Drill, Rockford 22", back geared, power feed.....	150.
Drill, Bausch multiple, 10-spindles, No. 2 taper.....	500.
Lathe, Sidney heavy duty, 19"x8", taper attachment, p. c. g.....	325.
Milling machine, Cincinnati No. 4 plain, high power, s. p. d.....	1,350.
Milling machine, Cincinnati No. 4 plain c. p. d., vertical att.....	925.
Shaper, Pratt & Whitney 15", crank.....	150.
Turret lathe, W. & S. No. 2A hollow hexagon, for chuck work.....	125.
Turret lathe, Cincinnati-Acme 3½"x36", single pulley drive.....	1,100.

FOR SALE BY

Nelson Machinery Co., 123 N. Pearl St., Green Bay, Wis.

Boring mill, 7' Bickford, vert. with 2 swivel heads, cone drive.	
Drills, Detroit 8-spindle, semi-auto. (2) each, \$400.	
Grinder, Landis crank pin, 16x72, \$400.	
Drill press, 5' Drees full universal radial, with m. d. arranged.	
Pipe machine, No. 14 Jarecki 2½" to 8", q. c., adjustable dies.	
Riveter, No. 81 Grant rotary, ½ h. p., 3 ph. 60 cy., 220 volt vertical motor.	
Shaper, 16" Cincinnati crank.	
Shaper, Fellows No. 62 gear, fine condition, \$375.	

FOR SALE BY

J. L. Lucas & Son, Inc., 3 Fox St., Bridgeport, Conn.

BORING MILLS

42" Bullard.

GRINDERS

New No. 2 Reed surface chuck.	No. 1 Morse universal, new.
14" P. & W. surface ball bearing spindle, magnetic chuck.	No. 2 Morse universal, new.

LATHES

Adams short cut lathe.	18x10 Hendey yoke head lathe
14"x 6' Hendey yoke head, taper draw bar, reliever.	26"x14' Bridgeford heavy duty engine lathe, quick change.

MILLERS

1 B Milwaukee plain, s. p. d. slott-ing attachment.	18" Cincinnati mfg.
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PRESSES

400 ton Perkins coining.	No. 24 Bliss knuckle joint embossing
--------------------------	--------------------------------------

SHEAR

D-42 Peck, Stow & Wilcox capacity No. 14 gauge soft steel, new.

SHAPERS

24" Stockbridge, cone drive.	4-16" Stockbridge, cone drive.
------------------------------	--------------------------------

WIRE MACHINE

2-½"x14' Schuster wire straighteners.

New and Used Wood-Working Machinery

For a large list of new and used wood-working machinery, consult **Wood-Working Machinery**—a monthly publication similar to this, but devoted to the advertising of wood-working and saw-mill machinery and allied equipment.

A copy may be had free of cost on application to the publisher, **Hitchcock Publishing Co., 508 S. Dearborn St., Chicago, Ill.**

USED AND REBUILT MACHINERY

FOR SALE BY

General Machinery Corporation, 170 Summer St., Boston, Mass.

LARGE TURRET LATHE

Houston-Stanwood-Gamble turret lathe, 42" swing with heavy round turret.

MISCELLANEOUS WANTS

WANTED BY

Box 64, c/o Hitchcock Pub. Co., 508 So. Dearborn St., Chicago, Ill.

SCREW MACHINES.

We are in the market for No. 52 Acme 4-spindle screw machines. Must be in good running condition, and priced low for cash. Motor drive preferred.

WANTED BY

Box No. 66, c/o Hitchcock Pub. Co., 508 S. Dearborn St., Chicago

6" Gleason.

No. 12 Barber-Colman.

Pratt & Whitney Thread Miller.

No. 3 Barber-Colman.

State price, serial number, location, condition, guarantee and age in first letter.



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the Best Plants in the Country**

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Unused "Mileage"

In K & T Factory Rebuilt Milling Machines

When you buy a "Milwaukee" Rebuilt you are not buying a used or worn out milling machine — you are buying unused mileage, measured in terms of dependable and accurate service.

Every used machine returned to the factory for rebuilding is stripped to the naked castings — every part is cleaned and checked for wear. The column, knee, saddle, and table are replaned or rescraped and all worn parts of the mechanism replaced. They are assembled on the same floor and by the same experts as new machines, and they carry the new machine accuracy guarantee.

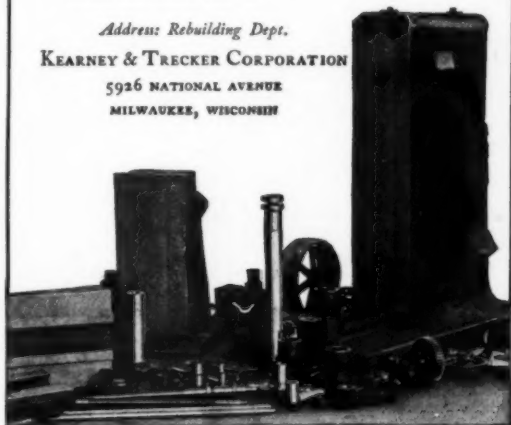
Factory Rebuilt K & T milling machines are like new, but cost much less. Send for catalog 33 and list of rebuilt Milwaukee Millers.

Address: Rebuilding Dept.

KEARNEY & TRECKER CORPORATION

5926 NATIONAL AVENUE

MILWAUKEE, WISCONSIN



B-2937—Millholland No. 3 Wire Feed Screw Machine, geared head chain motor drive including 2 H. P. Hobart Bros. motor, 1200 R. P. M., A. C., 3 phase, 60 cycle, 220 volts, pan and pump, power feed turret, screw longitudinal adjustment to cut-off slide, front and rear tool post complete, automatic chuck, collets, bar feed attachment complete with stock stands, air chuck attachment fitted and operating all the following chucks, which are included: 8" 3-jaw universal chuck, 12" 2-jaw revolving jaw chuck for valve bodies, all tools for cut-off slide, and tools for turret.....**\$625.**

B-2411—Bessemer 50 H. P., 2 cycle, Gas Engine, 180 R. P. M., Serial 11181, single cylinder, horizontal, with crown pulley 44" diam., x16" wide, with friction clutch and outer bearing, with adjustable pillow block, equipment includes gas pressure regulator, thermometer, and force feed lubricator, gas valve, etc.....**\$400.**

B-2230—Bossert Die Slotting Machine with 12" round work table having two T-slots and revolving by hand wheel and worm; machine has hand longitudinal feed and hand transverse feed, and is driven by 3-step cone, 2" belt, with tight and loose pulley, stroke to tool is about 3", and provision for relieving edge on return stroke; height from table up to bottom of ways 6 3/4".....**\$350.**

B-3090—Baker 18" Keysester with countershaft, and three fairly large 1 1/4 to 2 3/4 bars and bushings.....**\$400.**

B-1699—Bliss No. 75 1/2 Straight Side Flywheel Press, with 6" stroke, 6" shank, side trimming attachment and bolster; takes 24" between housings, has bed area 23x23, and flywheel 2300 lb.....**\$750.**

B-1967—Bertsch Class D Single End Punching Machine, solid knee, 24" throat, capacity 3/4" thru 1 1/2", and 2 1/4" thru 12 gauge, belt driven, with adjustable knockout, with punching tools, ser. 5432.....**\$650.**

B-2500—D. H. Stoll Co. Power Squaring Shear Type 336, serial 33055, shear 36" long for 10 gauge, 15" gap, overhead drive, geared drive from flywheel, table 48" long, 16" wide, with gauge in rear.....**\$475.**

B-2334—Cincinnati 60"x60"x14' Spur Geared Planer, widened pattern, with two rail heads, power elevator, countershaft for belt drive, table 50" wide, 24" between center of V's, equipment includes one reach block to fit clapper box as follows: 5" wide, 7 1/2" high, 26" reach, with clamp bolts for tools.....**\$1100.**

331-335 West Fourth St., Cincinnati, Ohio

BRANCHES: INDIANAPOLIS, IND. HAMILTON, OHIO DAYTON, OHIO,
LOUISVILLE, KY., COLUMBUS, OHIO

Good Used Machine Tools

BARGAIN PRICES

AUTOMATIC SCREW MCHS.

- 1— $\frac{3}{8}$ " Cleveland Automatic
- 1— $\frac{1}{2}$ " 4 Spindle Gridley.
- 3— $\frac{1}{4}$ — $\frac{1}{2}$ " Clevelanda
- 2—No. 515 National Acme
- 2—No. 53 National Acme
- 1—No. 5A Potter & Johnston
- 2—No. 6A Potter & Johnston

VERTICAL AND HORIZONTAL BORING MACHINES

- 1—24" Bullard Rapid Production
- 1—No. 6C Binsee, $\frac{3}{4}$ " bar
- 1—Bement-Miles, $\frac{5}{8}$ " bar
- 1—Landis, $\frac{3}{8}$ " bar, Floor Type
- 1—Niles-Bement Pard, $\frac{4}{8}$ " bar

DRILLS

- 1—20" Silver
- 1—3 Spindle W. F. & John Barnes
- 1—4 Sp. Henry & Wright, Model K

GRINDERS

- 1—No. 1 Morse
- 1—No. 3 Morse
- 1—10"x36" Norton
- 1—No. 2 Brown & Sharpe Universal
- 1—No. 2 Brown & Sharpe Plain
- 1—No. 4 Brown & Sharpe Universal
- 2—No. 60 Heald
- 1—No. 3 Rivett Internal
- 1—Rivett Radius
- 1—Blevney Production
- 1—No. 14 Gardner
- 1—No. 22 Heald vert. Rotary

LATHES

- 2—13"x5' Willard
- 4—16"x6' Porter
- 1—16"x6' Oliver, Taper Attach.
- 1—18"x6' Lodge & S. Gd. Head.
- 1—18"x8' Reed Prentice, Gd. Hd.
- 1—24"x12' Bradford
- 1—36"x16' Springfield
- 1—50"x28' Fitchburg
- 1—26"x10' LeBlond Univ. Cr. Sh.

MILLING MACHINES

- 1—No. 3 Garvin
- 1—No. 6 Whitney
- 1—No. 0 $\frac{1}{2}$ LeBlond
- 1—12" Cincinnati
- 1—No. 3 Cincinnati Pl. Hi Power
- 1—No. 3 Becker Vertical
- 1—No. 2 Cincinnati Vertical
- 1—No. 4 Cincinnati Vertical
- 1—No. 4 Becker Vertical
- 1—No. 5 Becker Vertical
- 1—No. 5 Brown & Sharpe Vertical

- 1—No. 6 Becker Vertical
- 1—No. 12 Brown & Sharpe
- 2—12" P & W. Automatics
- 1—Newton Slab Miller (Planer Ty.)
- 1—No. 1 $\frac{1}{2}$ Garvin Duplex—new

PLANERS & SHAPERS

- 1—14" Flather
- 1—16" Garvin
- 1—36"x26"x10' Whit., 2nd Belt
- 1—36"x8' Pond, Motor Drive
- 1—36"x36"x18' Cincinnati
- 1—40"x40"x10' Flather
- 1—60"x60"x20' Putnam
- 1—72"x72"x22' Niles
- 1—84"x56"x16' Gray

PRESSES—POWER

- 1—No. 18 Bliss
- 1—No. 19 Bliss
- 1—No. 68N Bliss, Double Action
- 1—No. 42 Bliss
- 1—No. 42 V. & O. Horning
- 1—No. 2 Sidney
- 1—No. 3 Consolidated
- 1—No. 4 V. & O.
- 1—4 $\frac{1}{2}$ " Rudolph & Krummell
- 1—No. 4 Bliss, Stiles
- 1—No. 5D Standard
- 1—No. 101 V. & O.
- 1—No. 103 V. & O. Geared
- 1—No. 73 $\frac{1}{2}$ Bliss
- 1—500 Ton Mesta, Hydraulic
- 1—No. 6 Beaudry Hammer
- 1—No. 1 $\frac{1}{2}$ Standard Drop Hammer
- 2—Miner-Peck Knuckle Joints

SCREW MACHINES AND TURRET LATHES

- 1—No. 1 Warner & Swasey
- 1—No 3 Foster
- 2—21" Gisholt
- 1—3"x36" Jones & Lamson
- 1—18" Libby
- 1—24" Gisholt

MISCELLANEOUS

- 1—Newton Cold Saw
- 1—Keller Die Sinker
- 1—Farwell Gear Hobber
- 1—Pratt & Whitney Gun Barrel Drilling Machine
- 6—No. 3 26" B. & S. Gear Cutters
- 1—Nutter & Barnes Cold Saw
- 1—5 Ton Niles Crane, 23' span
- 3—36H. G. & W. Gear Hobbers
- 1—Type 36, Stoll Slitter
- 1—Reynolds Auto. Screw Driving

If the machines you need are not herein listed send us your requirements. We can fulfill your needs

WIGGLESWORTH MACHINERY CO., 170 Summer St., BOSTON, MASS.

Simmons "Rest"

A few selections from our stock of

BORING MILLS

- 1-16' Niles-Bement-Pond Vertical.
- 1-14' Niles-Bement-Pond Vertical.
- 1-10' Niles-Bement-Pond Vertical.
- 1-10' Niles Vertical.
- 1-10-16' Niles Vertical.
- 1-8' Sellers Vertical.
- 2-8' Betts Vertical.
- 1-7' Bullard Vertical.
- 1-6' Niles-Bement-Pond Vertical.
- 1-62" Niles-Bement-Pond Vertical.
- 2-44" Niles-Bement-Pond Vertical.
- 1-36" Gisholt Vertical.
- 1-36" Bullard New Era.
- 1-24" Bullard Rapid Production.
- 1-No. 8 D & H Horizontal.
- 1-No. 1 D & H Horizontal.
- 1-No. 1 Barrett Horizontal.
- 1-No. 3 Barrett Horizontal.
- 1-No. 2 Barrett Horizontal.
- 1-5" Bar Niles-Bement-Pond Horiz.
- 1-6" Bar Espen-Lucas Floor Type.
- 1-7" Bar Newton Cylinder.

DRILLS

- 1-30" Henry & Wright Class H.
- 1-4' Bickford Plain.
- 1-5' Western Plain.
- 1-6' Bickford Plain.
- 1-7' Dreses Plain.
- 1-5' Bickford Universal.
- 1-6' American Universal.
- 2-One-Spindle Avey Bench.
- 1-Two-Spindle Edlund No. 2-B.
- 2-Three-Spindle Rockford Gang.
- 1-Three-Spindle Edlund No. 2-B.
- 5-Four-Spindle Rockford Gang.
- 1-Four-Spindle Leland-Gifford B.B.
- 1-Seven Spindle Henry-Wright B.B.
- 1-No. 4 Baush Multiple.
- 1-No. 30 Natco Multiple Tapp. Att.
- 1-No. 15 Natco Multiple Spindle.
- 1-No. 11-D Moline Four-Spindle.
- 1-24" Barnes Sliding Head.
- 1-30" Prentice Sliding Head.
- 1-42" Cincinnati-Bickford Slid. Hd.
- 1-No. 310 Baker Heavy Duty.
- 1-No. 3-D Colburn Heavy Duty.
- 2-No. 4-D Colburn Heavy Duty.

BROACHING MACHINES

- 2-No. 3 LaPointe Double.
- 2-No. 3-A LaPointe Single.
- 1-No. 4 LaPointe Single.

GEAR CUTTERS

- 1-No. 13 Brown & Sharpe.
- 1-No. 1 Cross Gear Rounder.
- 6-18" Gleason Bevel Generators.
- 1-24" Gleason Bevel Gear Planer.
- 1-No. 14" Standard Automatic.
- 1-No. 3 28" Cincinnati Automatic.
- 1-No. 4 36" Cincinnati Automatic.
- 1-12" G and E Gear Hobber.
- 1-No. 36-H G & E Hobber.
- 1-36" G and E Spur.
- 1-60" Brown & Sharpe Spur.
- 1-72" Brown & Sharpe Spur.
- 1-No. 96-H G and E Hobber.
- 2-90" Pratt-Whitney.
- 1-No. 12 Barber-Colman Hobber.
- 1-No. 3 Barber-Colman Hobber.

MILLERS

- 5-SD Becker Continuous Millers.
- 3-CS Becker Continuous Millers.
- 1-No. 5 Brown & Sharpe Vert.
- 1-No. 5 Becker Vertical.
- 1-No. 4 Cincinnati Vert.
- 1-No. 3 Cincinnati Vert.
- 1-No. 20 Garvin Vertical.
- 1-No. 14 Garvin Vertical.
- 1-No. 5 Cincinnati Plain.
- 1-No. 4 Cincinnati Plain.
- 3-No. 3 Kemp Smith Plain.
- 2-No. 3 Cincinnati Pl. Gd. Hd.
- 1-No. 3 LeBlond Plain.
- 1-No. 2-B Milwaukee Plain.
- 1-No. 2 Kemp Smith Plain.
- 1-No. 2 Rockford Plain.
- 1-No. 1-B and Sharpe Plain.
- 1-No. 1 Kemp Smith Plain.
- 1-No. 1 Oesterlein Plain.
- 1-No. 13 Garvin Plain.
- 1-28" Cincinnati Automatic.
- 2-18" Cincinnati Automatic.
- 2-12" Pratt-Whitney Auto.
- 1-5" Pratt-Whitney Auto.
- 1-72x72x24' N.-B.-Pond Planer type.
- 2-66x62x15' Ingersoll Planer type.

Sold under money back guarantee-

SIMMONS MACHINE

Buffalo, 88 Exchange Street

Albany, 1700

1000 "Restored" Machines

1000 guaranteed "Restored" Machines

- 1-59"x20"x12' Ingersoll Planer type.
- 1-56"x10"x12' Newton Planer type.
- 1-40"x22"x6' Ingersoll Planer type.
- 1-48"x36"x14' Ingersoll Adj. Rail.
- 1-32"x28"x16' Ingersoll Planer type.
- 1-No. 2 Garvin Duplex.
- 1-No. 3 Pratt-Whitney Duplex.
- 3-No. 7-H Becker Lincoln type.

PLANERS

- 1-120"x120"x20' Bement.
- 1-120"x72"x16' Niles-Bement-Pond.
- 1-84" Bement Rotary.
- 1-72"x72"x18' D. & H. Openside.
- 1-60"x60"x14' Powell.
- 1-48"x48"x14' Woodward-Powell.
- 1-48"x48"x12' Niles-Bement-Pond.
- 1-48"x48"x10' Cincinnati.
- 1-36"x36"x14' Niles-Bement-Pond.
- 1-36"x36"x12' D & Harvey Openside.
- 1-36"x24"x12' D & Harvey Openside.
- 1-30"x30"x18' Cincinnati.
- 1-30"x30"x12' Niles-Bement-Pond.
- 1-26"x26"x6' Gray.
- 1-24"x24"x10' Whitcomb-Blaisdell.
- 1-24"x24"x8' Cincinnati.

LATHES

- 1-6"x60" Lo-Swing.
- 1-24"x36" Lodge-Shipley Marvel.
- 1-14"x6" Pratt-Whitney.
- 1-14"x6" Lodge-Shipley.
- 1-14"x6" American.
- 1-16"x8" Monarch.
- 1-16"x6" Springfield Tool Room.
- 1-16"x8" Hendey Tool Room.
- 1-17"x8" LeBlond.
- 1-17"x10" LeBlond with turret.
- 1-18"x8" American.
- 1-18"x10" Lodge-Shipley.
- 1-20"x12" Whitcomb-Blaisdell.
- 1-20"x20" Reed.
- 1-24"x12" Reed-Prentice.
- 1-24"x14" Reed-Prentice M. Drive.
- 1-26"x12" Niles-Bement-Pond.
- 1-28"x18" Schumacher-Boye M. Drive.
- 1-28"x28" Hamilton.
- 1-30"x12" Niles-Bement-Pond.
- 1-30"x12" Whitcomb-Blaisdell.
- 1-36"x14" Bridgeford M. Drive.

- 1-36"x14' Putnam Motor Drive.
- 1-36"x20' Bridgeford Motor Drive.
- 1-42"x24' Niles-Bement-Pond.
- 1-42"x39' Putnam 2-carriages M. D.
- 1-48"x14' Pond Geared Head.
- 1-48"x22' Pond Geared Head.
- 1-60"x36' Pittsburgh M. Drive.
- 1-54"x34' Bement Belt Drive.
- 1-66"x40' Putnam Motor Drive.
- 1-72"x58' Niles-Bement-Pond.
- 1-90" Putnam Mogul Type Wheel.

MISCELLANEOUS

- 1-No. XB Ingersoll Compressor.
- 1-No. 0 Williams-White Bulldozer.
- 1-No. 1 Williams-White Bulldozer.
- 1-3" H-Rogers Cut-off.
- 1-No. 1-A Gorton Engraver.
- 1-No. 2 W-White Eyebender.
- 1-Fischer Oil Groover.
- 1-300-lb. Bradley Hammer.
- 1-125-lb. Bradley Hammer.
- 1-3000-lb. Chambersburg Hammer.
- 1-No. 3 Baker Keyseater.
- 1-No. 3 Catlin Keyseater.
- 1-No. 11 D-Slate Marker.
- 1-7" Baker Tapping Machine.
- 2-4" Bignall-Keeler Threading.
- 1-6" Oester Threading.
- 1-14" Ajax Upsetter.
- 1-14" Acme Upsetter.

PUNCH AND SHEARS

- 1-No. 3 Hilles-Jones Coping.
- 2-No. 4 Hilles-Jones.
- 1-No. 5 Hilles-Jones.
- 2-No. 6 Hilles-Jones.
- 1-No. 6 Hilles-Jones Double.
- 1-No. 2 Hilles-Jones Angle.
- 1-5 x 5 Carlin Alligator.

PRESSES

- 1-No. 1674 Toledo Toggle Press.
- 1-200-ton Hydraulic Wheel.
- 1-15-ton Lucas.
- 1-No. 69 Bliss.
- 1-No. 77 Bliss.
- 1-No. 56 Toledo.
- 1-No. 5 Bliss Geared.

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TOOL CORPORATION

Brooklyn Road

New York, 149 Broadway

REAL VALUES

RADIALS AND UPRIGHT DRILLS

7¹ Fordick Plain, cone pulley.
6¹ N. B. P. Plain Radial, motor drive.
6¹ & 5¹ Cin-Bick. Pl. Rad., g. b. d.
6¹ American Tr. Grd. Pl. Radial, g. b. d.
5¹ American Tool Wks. t. g. Pl., g. b. d.
5¹ American Triple Purp. Plain Radial,
enclosed head, latest type.
4¹ Dresser H. D. Pl., Radial, g. b. d.
4¹ American Triple Geared Plain Radial,
g. b. d. (3).
3¹ Morris Plain, gear box drive.
6¹ N.B.P. Semi-Univ., m.d. thru gr. box.
4¹ Carlton b. b. Sensitive, tapping attach.
4¹ Hammond b. b. Sens. Radial.
3¹ American Sens. b. b. Radial, tap. att.
2¹/₂¹ Carlton b. b. Sens. Radial, t. a.
No. 1 W. F. & John Barnes Horizontal.
34¹ & 28¹ W. F. & J. Barnes Up., latest.
26¹ W. F. & J. Barnes Up., t. a., late.
28¹ Reed-Prentice Upright.
36¹ Aurora Upright Drill, tapping att.
36¹ & 32¹ Aurora Uprights, t. a.
25¹ Superior (Kokomo H-S) Upr.
25¹ Weigle Upright, latest type.
26¹ Barnes ALL GEARED.
25¹ Snyder Upright Drill.

24¹ Cincinnati Bickford Upright.
24¹ Milwaukee Upright Drill.
22¹ W. F. & J. Barnes Upright, t. a.
21¹ Superior (Kokomo Hi-Speed) Upr.
22¹ W. F. & J. Barnes 4-spindle Gang.
22¹/₂¹ W. F. & John Barnes 4-spdl. Gang.
6-spindle 21¹ Hoefler Gang.
3-spindle 22¹ Hoefler Gang Drill.
6-spindle Acme Horiz. Auto. Drill.
Allen 2, 3 & 6-sp. b. b., No. 2 M. T.
No. 314 Baker Bros. Hvy. Duty.
No. 220 Baker 2-spindle, H. D.
No. 17 Foote-Burte 3-spdl. hvy. duty.
Sipp 3-sp., b. b., p. f., No. 2 M. T.
Demco 3-sp., b. b., p. f., No. 2 M. T.
Avey 2-sp. b. b., No. 2 Morse Taper.
No. 2 Avey 6-sp. b. b., No. 2 M. T.
Henry & Wright 2-sp. b. b., No. 2 M. T.
No. 2-B Edlund 4-sp., b. b., No. 2 M. T.
No. 12 Pratt & W. Multiple, 8 spindle.
No. 11 P. & W. Mult., equipped with 4-sp.
No. 0 Fox Multiple, 4-spindles.
No. 3 Bausch Mult., equip. 19-spdl.
No. 26 Fox Mult. Drill & Tapper, late.
Nos. 30 & 12 Natco Mult., late type.
No. 37 Natco Multiple, 14-spindles.

ENGINE AND TURRET LATHES

38¹x42¹ Johnson Tr. Grd., s. c.
32¹x26¹ Pond standard change.
36¹x20¹ Bridgeford grd. hd., q. c., late.
36¹x18¹ N.-B.-P. Standard Change.
27¹x17¹ Reed std. change, taper att.
36¹x16¹ L. & S. Sel. Grd. Hd., q. c.
26¹x12¹ Pittsburgh q. c.
24¹x12¹ American Tool Wks. q. c.
30¹x14¹ Lodge & Shipley, q. c.
24¹x14¹ & 24¹x12¹ Cicco, g. h., q. c., new.
24¹x10¹ G. & K. q. c.
24¹x10¹ Boye & Emmes q. c. Lathe.
22¹x12¹ Whitcomb-Blaisdell semi-q. chg.
20¹x11¹ Chard q. c. taper attach.
20¹x10¹ LeBlond q. c., taper att.
18¹x10¹ S.-B. & E. q. c., taper att.
18¹x10¹ American geared head, q. c.
20¹x8¹ Hendey q. h., q. c., t. a.
18¹x8¹ Monarch quick change.
18¹x8¹ LeBlond q. c. Lathe.
18¹x8¹ Boye & Emmes quick change.
18¹x8¹ L. & S. Sel. Grd. Hd., q. c.
16¹x8¹ Schumacher & Boye, q. c.

16¹x8¹, 16¹x6¹ x 14¹x6¹ Lodge & Shipley
q. c. Lathes, late types.
16¹x8¹ L. & S. s. g. h., q. c., t. a.
16¹x6¹ L. & S. Sel. Grd. Hd., q. c.
16¹x6¹ Cincinnati quick change.
16¹x6¹ Lodge & Shipley q. c.
16¹x 6¹ Monarch quick change Lathe.
16¹x6¹ & 14¹x6¹ Amer. h.d., q. c., late.
12¹x6¹ LeBlond quick change.
14¹x6¹ Reed-Prentice, grd. hd., q. c.
21¹x10¹ LeBlond Rapid Production
Mfg. with 4-way turret tool post.
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9¹x14¹ Porter-Cable Mfg., late.
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3¹/₂¹x40¹ Greenlee Flat Tur., bar equip.
2¹/₄¹x24¹ Acme Flat Turret, chuck.
3¹x36¹ J. & L. Turret, chuck equip.
3¹x36¹ J. & L. dbl. sp. Turret, late.
34¹ & 24¹ Gisholt Turret, t. a., late type.
21¹ Gisholt Turret, taper att., late type.
Nos. 2 & 4 Millholland Turret.
Nos. 2, 4, 6 Warner & S. Turret.

EASTERN MACHINERY CO

We also Buy machinery.

Rebuilt and Guaranteed Machine Tools

GEAR MACHINERY AND GRINDERS

18th Gleason Bevel Gear Generators.
No. 5-A Lees-Bradner Gear Hobber.
No. 3 Barber-Colman Gear Hobbers.
No. 12 Barber-Colman, pwr. rap. trav.
18-H Gould & E., Hi-Duty Gr. Hob.
No. 34 B. & S. Gear Hobbers, late type.
Nos. 6 & 61 Fellows Gear Shapers.
No. 5-48th B. & S. Auto Spur Gr. Cut.
No. 4-48th B. & S. Auto Spur Gr. Cut.
No. 3, 36th & No. 3, 26th B. & S. Auto.
No. 3-26th Cincinnati Auto. Spur Gr. Cut.
No. 2 Wilmarth & M. Auto. Surface.
6th Heald Grinder & Surf., style 200.
No. 0 LaSalle Hand Feed Surface.
No. 22, 12th Heald Rotary Surface.
No. 3 B. & S. Surface, planer type.
No. 3 Rivett Internal Grinder.
Nos. 70 & 75 Heald Internal Grinders.
No. 70 Heald Int., clutch in head.
No. 60 Heald Cyl., late type, complete.
Capitol Internal Grinder.
No. 4, 23rd & No. 8, 40th Gard. Disc.

No. 10-18th Besly Disc Grinder.
No. 120 Gardner Double Disc.
14th P. & W. Vert., Surf., b. b. spindle.
No. 16-26th Blanchard Vert. Surf., b. d.
12th P. & W. Vert. Surf., rot. mag. chk.
Walker single stroke Vertical Surface,
10th dia. magnetic chuck.
No. 120 Gardner Combination Disc.
Yankee Twist Drill, cap. to 2nd drills.
Oliver Drill Point Grinder, m. d.
6"x32", 10"x24" & 10"x36" Norton Pl.
6"x18" and 10"x52" Landis Plain
Self Contained, late types.
No. 2 Cincinnati Univ. Tool & Cutter.
8"x30" Modern Plain, self-contained.
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No. 2-12"x36" Cincinnati Pl. 95% new
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Bath Universal Grinder, comp. equip.
Gisholt Universal Tool Grinder.
No. 3 B. & S. Univ. Cut. & Reamer,
P. & W. Thread Milling Cutter.

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24th G. & E. H. D., B. G., Crank, late.
24th Queen City H. D., B. G., Crank, late.
24th Stockbridge H. D., B. G., Crank.
20th Milwaukee H. D., B. G., Crank.
20th Amer. H. D., B. G. Crank, S. P.
20th Cincinnati H. D., B. G., Crank, S. P.

24th & 16th Barker h. d., b. g., Crank.
16th Smith & Mills B. G. Crank.
16th Hollingsworth H. D., B. G., Crank.
16th Steptoe H. D., B. G., Crank.
15th Pratt & Whitney Crank.
15th Hendey fric. grd. Shaper.
42"x42"x12" Cincinnati Tri-Sp., 4 hds.
42"x42"x10" G. A. Gray, 1 head.

MILLING MACHINES

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Becker Model "B" Vert. Continuous.
Becker Model "C" Vert. Continuous.
No. 1A Owens Univ., cone pul. compl.
Nos. 3 & 1 Kempnith Univ., c. p. comp.
No. 4 Hendey Univ., single pulley, comp.
Nos. 3 & 2 B. & S. Universal, c. p.
Nos. 2 & 1 1/2 LeBlond Universal, c. p.
Nos. 3 & 1 Hendey Universal, c. p.
No. 5 Cincinnati, H.P. Plain, rectangular
overarm, late type.
No. 4 Cincinnati, H. P. Pl., s. p., p. r. t.
No. 3 Hvy. Ohio Plain, c. p., p. r. t.
Nos. 3 & 1 Kempnith Pl., cone pulley.
No. 3 Hendey Plain, cone pulley.
No. 3 Cincinnati Plain, cone p.

Nos. 2 1/2 & 2 LeBlond Pl., cone pulley.
No. 2 Cincinnati Plain, cone pulley.
No. 2H Brown & Sharpe pl, cone pulley.
No. 1 1/2 B. & S. Plain, cone pulley.
No. 0 1/2 Cincinnati Plain, cone pulley.
28th Cincinnati Semi-Auto. Duplex.
28th Cincinnati Semi-Auto. Face.
48th Cincinnati Auto. Duplex, late type.
24th Cincinnati Automatic, late type.
24th Cincinnati Automatic Duplex.
18th Cincinnati Plain Mfg. Millers.
Gooley & Edlund, Briggs, type, Mfg.
Hendey Duplex Milling Machine.
No. 6 Whitney Hand Miller.
No. 1 Bristol b. b. Hand Miller.
No. 3 1/2 Fox Hand & Power Millers.
No. 2 Knight Milling and Drilling.

(Continued on next Page)

261 Spring Grove Ave., CINCINNATI, O.
What have you to Sell?

Rebuilt and Guaranteed Machine Tools

(Continued from Preceding Pages)

MISCELLANEOUS

Air Compressor, 18x12x12 Worthington, dbl. steam drive, cap. 700 cu. ft.
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Arbor Press, No. 4 Greenard
Arbor Press, No. 55 Atlas Pwr., b. d.
Automatics, Nos. 52, 53, 54, & 56, National Acme, 4-spindle.
Automatic, No. 6A Potter & Johnson, late type, 19,000 serial.
Automatics, 14" Fay, s. p. d., (2), Autos., 2¼", 3¼" Gridley s. s.
Auto., ¾" Gridley 4-spindles.
Bolt Cutters, 1" Acme Class "A".
Bolt Thread. Mch., 1" Landis.
Bolt Thread. Mch., 2½" Landis, l. s.
Bolt Thrd., 2" Acme dbl.-sp.
Bolt Thread. Mch., 1¼" Acme.
Boring Mill, 51" Bullard vert., 2 hds.
Bor. Mill, 42" Bullard New Era vert.
Boring Mill, 42" Bausch vert., 2 hds., power rapid traverse.
Boring mill, 37" Niles Vertical, 2 hds.
Boring Mill, 72" Bick vert., 2 hd.
Bor. Mill, 36" Bullard Vert. Rap Pro.
Bor. Mill, 30" Gisholt vert., turret hd.
Boring Mill, 3" Barrett Hor., 3" dia. bar
Boring mill, 3" Lambert Hor. s. p.
Boring Mill, No. 3-A Univ. Hor. 3" bar.
Boring Mill, No. 1 Cleve. Hor. 2½" bar.
Broach. Mch., Nos. 2 & 3B LaPointe.
Broaching Machines, Nos. 2 & 3 J. N. LaPointe Double.
Broaching Machines, Nos. 2 and 3. LaPointe (of Hudson).
Chuck Mch., No. 23 New Britain Auto.
Chuck Mch., No. 22 New Britain auto.
Chuck Mch., No. 24 New Britain auto.
Chuck. Mch., No. 53 N. B. Auto. d.e.
Die Sinkers, Nos. 2 & 3 P. & W.
Forcing Press, 15 ton Lucas Pwr., b. d.
Gun driller, No. 1 Pratt & W. 2-spdl.
Hack Saw, 12"x12" Racine H.S. Pwr.
Hammer, 25 lb. Little Giant Trip. b. d.
Hammers, 40 & 60 lb. Bradley c. h.
Hammer, 50 lb. Bradley Up., b. d.

Hammer, ¼" Schuster Riveting.
Hammer, No. 3A Hi-Spd. Riveting.
Hammers, No. 1-AA High Spd. Riv.
Hammer, No. 2-A H. S. Riv., h. d.
Hammer, No. 1½B High Spd. Rivet.
Keyseater, No. 1 Baker Bros., cap. 1¼".
Polishing Mch., Blevaney, type "A".
Polish. Lathe, No. 3 Gardner, m. d.
Press, No. 14 Peck-Stow & Wilcox O. B. I. Power, D. A.
Press, No. 83-C Michigan Dbl. Crk. Geared Power, 42" between upr.
Press, No. 51-S Ferracut Double Crank Power.
Press, DNo. 2 Ferracut O. B. I. cam, double action.
Press, D. D. No. 2 Ferracut O. B. I. cam, double action.
Press, No. 54-A Toledo O. B. I., Pwr.
Press, No. 19 Bliss O. B. I., Power.
Press, No. 96 Niagara Geared Dbl. Action Cam Drawing.
Profilers, No. 12 P. & W. 2-spindle.
Profilers, No. 1 Garvin, 2-spindle.
Punch & Shear, No. 2 L. & A., dbl. end.
Punch & S., No. 3 Hilles & J., dbl. end.
Rivet Spinner, No. 80A Grant.
Rolls, 8" Rock River Power Bending, capacity ½" plate.
Sprue Cutter, ¾" Tessemer.
Straightening Presses, No. 1 Springfield, bench type.
Tapping Mchs., Nos. 1 and 2 Garvin Automatic, back geared.
Tapping Machines, Nos. 2X and 2 B. G. Garvin Automatic.
Threader, No. 3 Lees-Bradner Internal.
Thread Milling Machines, 6"x14" & 6"x80" Pratt & Whitney.
Welder, Winfield Automatic Electric Spot, cap. 2 pieces of ¼".
Welder, Winfield Electric Butt, cap. ½" rounds.
Welder, Federal Electric Spot, capacity 2 pieces of ¼".

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We also buy machinery—what have you to sell?

EASTERN MACHINERY CO.

3261 Spring Grove Ave.,

Cincinnati, Ohio

Milling Machines Look These Over!

**Only at RIVERSIDE'S can you
find Machines like these:**

- 1—Only, No. 2 Cincinnati High Power single pulley drive, all geared Universal milling machine. With slotted spindle, nose and equipped dividing heads, vise and full set of spiral cutting gears.
- 2—Only, No. 2M Cincinnati all geared, single pulley drive, Universal milling machine. This is their late type machine, with dividing heads and gears.
- 1—Only, No. 25 Ohio Oesterlein Universal milling machine, equipped with 3 step cone, back geared, head stock but no dividing head.
- 1—Only, No. 20 Ohio Oesterlein Universal milling machine, cone drive, with vise but no dividing heads.
- 3—Only, No. 1-D Brown & Sharpe Universal milling machine, equipped with dividing head for spiral cutting full set of change gears and arranged for cone drive.
- 3—Only, No. 2 Cincinnati Universal Milling cone drive and equipped with dividing heads and gears.
- 1—Only, No. 1 Cincinnati Universal Milling Machine, arranged for cone drive and complete with dividing heads and gears.
- 2—Only, No. 2 Brown & Sharpe Plain Milling Machines, arranged for cone drive and equipped with vise.
- 1—Only, No. 2 Cincinnati Plain High Power all geared milling machine, single pulley drive, slotted spindle nose.
- 1—Only, No. 4 LeBlond cone drive milling machine, machine has quick change gears and all power feeds.

The above is only to give you an idea of the type of machines RIVERSIDE can furnish. We have over 1500 of the best machine tools available so without obligation let us quote you on your requirements. EVERY MACHINE GUARANTEED.

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Bath's Guarantee

Bolt and Nut and Forging Machinery

- $\frac{3}{4}$ "-1"-2"-2 $\frac{1}{2}$ "-3" and 4" Ajax steel bed upsetters.
- 2"-3"-3 $\frac{1}{2}$ "-5" Acme steel bed, upsetters.
- 2 $\frac{1}{2}$ " Ajax iron bed upsetter geared, with side shear.
- 4-slide cotter pin making machines.
- $\frac{3}{4}$ " Waterbury-Farrel D. S. O. D. cold header.
- $\frac{3}{4}$ " Waterbury-Farrel D. S. O. D. cold header.
- No. 3 Manville S.S. S.D. cold header, cap. $\frac{3}{8}$ "x3".
- No. 3 $\frac{1}{2}$ Waterbury-Farrel D. S. S. D. toggle type cold header, cap. $\frac{7}{16}$ "x $\frac{3}{4}$ " to $\frac{1}{2}$ "x3 $\frac{1}{2}$ ".
- No. 5 Waterbury-Farrel S. S. S. D. cold header, cap. $\frac{3}{8}$ "x2" to $\frac{3}{4}$ "x4".
- $\frac{3}{4}$ " Waterbury-Farrel cold pressed nut machine.
- 6-spindle Acme semi-automatic nut tapper $\frac{1}{2}$ " capacity.
- $\frac{1}{2}$ "x6" Waterbury-Farrel automatic bolt trimmer.
- $\frac{3}{8}$ " Economy automatic bolt pointers and threaders.
- 1 $\frac{1}{4}$ " Landis triple head bolt cutter, m. d.
- No. 1 Williams & White bulldozer.
- 6"x18" Niagara washer.

Boring Mills—Horizontal

- 3 $\frac{1}{2}$ " bar P. & H. motor drive.
- 5 $\frac{1}{2}$ " bar Detrick & Harvey, floor type.
- 5 $\frac{1}{2}$ " bar Niles, floor type, belt drive.

Boring Mills—Vertical

- 44" Baush, 2 heads, belt drive.
- 51" Niles-Bement-Pond, single pulley drive.
- 72" Sellers, rapid traverse, arranged motor drive.
- 14" and 16" Niles, two heads.
- 12" Betts, heavy duty, motor drive.
- 10"-16" Bement-Miles, with extension head.
- 10"-16" Niles, 2 heads, friction feed.
- 16"-24" Niles with central extension head.

Drills

- 4" Hammond sensitive radials with tapping attachment.
- 5" Bickford radial, gear box; 6" Pond radial, belt drive.
- 6" American triple purpose radial.
- 22" Barnes, sliding head, back geared.
- 23" Rockford, back-geared, geared feed.
- 24" Kokomo, sliding head, back geared.
- 24" Reed-Prentice, sliding head, back geared.
- 25" Silver, sliding head, back geared.
- 4-spindle Foote-Burt.
- 6-spindle Moline cylinder borer.
- No. 11 Natco 8-spindle multiple.
- No. 25 Foote-Burt heavy duty, 3" capacity.

Gear Cutters

- 45" Gould & Eberhardt gear cutter, arr. m. d.
- 72" Gould & Eberhardt gear cutter, arr. m. d.
- 60"x20" Schuchardt & Schutte gear hobber, belt drive.

CYRIL J. BATH & CO., E. 70th &
Cable Address

Cleveland Stock

Grinders

- 10"x52" Landis, plain, self-contained.
- No. 2 Gardner, ball bearing disc, belt dr. 18".
- No. 2 Gardner, plain disc, belt drive. 18".
- No. 24. Gardner, disc grinder, motor drive, 52".

Hammers

- 100-lb. Bradley, horizontal helve.

Lathes

- 16"x6' Pratt & Whitney, tool room—T. A.
- 16"x8' Monarch, quick change gear, back geared.
- 17"x8' Sidney, quick change, double back geared.
- 36"x14' Schumacher & Boye, triple geared.

Milling Machines and Keyseaters

- Type B Briggs Lincoln millers, table 54"x11½".
- 20"x7"x18" Oesterlein plain, belt drive.
- No. 0 Rockford, plain, table 30"x7½".
- Type B Becker vertical, S. P. D.
- No. 2 Baker Bros. keyseater, 2" cap. automatic feed.

Planers and Shapers

- 42"x42"x16' Detrick & Harvey openside planer with rev. m. d.
- 48"x48"x16' Cincinnati, 4 heads.
- 96"x96"x16' Pond, 4 heads, belt drive.
- 24" Queen City Shapers.
- 20" Smith & Mills crank shaper.
- 36" Morton draw-cut shaper.
- 48" Morton draw-cut shaper, with 60" stroke.

Punches and Shears

- 48" throat Bement-Miles, arch. jaw, 1¼"x1".
- 2" Garrison steel bed alligator shear.
- ¼" Niagara circle shear.
- No. 4 Quickwork rotary shear, ¾" cap., with 48" thrt. circle att.
- 10"x½" Hilles & Jones squaring shear.

Slotters

- 20" Bement crank, cone drive.
- 36" Bement crank, cone drive.
- 48" Niles-Bement-Pond, motor drive.

Turret Lathes and Screw Machines

- No. 1-B Foster, universal, geared head.
- 3"x36" Jones & Lamson, geared head.
- 18" Libby turret lathe, geared head.
- 24" Cisholt, cone drive & motor drive.

MISCELLANEOUS

- AJAX reclaiming rolls.
- 400-ton Niles wheel press, 96".
- Nos. 1 & 2 Buffalo Forge blowers.
- 36"x20" Allen riveter, ¾" cap.
- 15-ton 51'10" span Niles crane.
- 16"x11/16" Hilles & Jones bending rolls.
- No. 5 Consolidated inclinable punch press, 2½" stroke.
- 4" stroke Excelsior straight side press.

Machinery Av., N. E., Cleveland, O.
ATHCO—Cleveland

ReMANUFACTURED Quality Machine Tools

-(ORIGINATED BY US)-

OUR GUARANTEE

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This is only a partial list. Write for price on any tool you need, whether listed below or not.

Lathes

- 1-66"x21' Putnam.
- 1-56"x16' Lodge & Shipley.
- 1-45"x24' Pond.
- 1-42"x50' American Grd. Hd.
- 1-42"x26' American Grd. Hd.
- 1-36"x71' American Grd. Hd.
- 1-27"x14' Reed-Prentice Grd. Hd.
- 5-26"x16' Niles-Bement-Pond.
- 10-26"x16' Bridgeford.
- 5-26"x14' Niles-Bement-Pond.
- 5-26"x12' Bridgeford.
- 40-26"x10' Niles-Bement-Pond.
- 15-26"x10' Whitcomb-Blaisdell.
- 44-26"x10' Bridgeford.
- 9-25"x12' LeBlond.
- 1-24"x10' American Grd. Hd.
- 5-20"x22"x16' American.
- 1-20"x12' L. & S. Sel. Grd. Hd.
- 6-20-22"x8' American.
- 1-19"x12' LeBlond Grd. Hd.
- 4-18"x8' L. & S. Sel. Grd. Hd.
- 1-18"x8' Lodge & Shipley.
- 1-18"x 8' Hendey.
- 1-14"x8' Pratt & Whitney.
- 1-16"x10' Sundstrand Mig.
- 2-4"x60' Loswing.
- 5-34' Fitchburg Loswing.

Auto. Screw Machines

- 7-No. 6-A Potter & Johnston.
- 2-No. 5-A Potter & Johnston.
- 1-1"x5" New Britain.

Radial Drills

- 1-4' Western Heavy.
- 1-4' Bickford.

Turret Lathes

- 10-24" Steuble; 4-24" Gisholt, M.
- 3-21" Gisholt. 1-No. 2-B Foster.
- 1-No. 7 Foster, Geared Head.
- 1-No. 3-A Warner & Swasey.
- 2-No. 3 Cincinnati-Acme Univ.
- 7-2-spindle Jones & Lamson.
- 1-18" Acme.
- 3-16" Cincinnati-Acme-Fox.

Vertical Boring Mills

- 1-10' Niles; 1-72" Niles.
- 1-96" Betts.
- 1-72" Cincinnati. 1-72" Bickford.
- 1-61" Baush. 1-51" Baush.
- 1-54" Bullard. 1-51" Bullard.
- 2-48" Colburn; 1-42" Colburn.
- 2-42" Gisholt. 1-42" King.
- 1-36" Bullard, Rapid Production.
- 2-36" Gisholt. 2-32" King.
- 1-30" Gisholt. 1-30" Flather.
- 2-24" Bullard New Era.

Horizontal Boring Machine

- 1-No. 12 P. & H. 1-4" bar Gisholt.
- 4-No. 1 Barrett. 2-Rock'd 2" bar

Shapers.

- 1-20" Columbia, M. D.
- 1-No. 16 Ohio. 1-16" Columbia.
- 1-16" Gould & Eberhardt, M. D.

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7660

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Machines for Immediate Delivery

Your money back if you return a machine within thirty days. No excuses necessary.

Below, a small section of our stock



Drill Presses

- 2—No. D-31 Fox.
- 1—No. 44-spindle Foote-Burt.
- 1—6-spindle H. & W.
- 1—4-spindle H. & W.
- 1—2-spindle H. & W.
- 1—2-spindle Sipp.
- 3—22" Barnes, Self Oiling.
- 2—4-spindle Allen.

Gear Cutters and Hobbers

- 1—No. 5 60" Brown & Sharpe.
- 1—26" x14" G. & E.
- 4—No. 3-28" Brown & Sharpe.
- 6—No. 12 Barber-Colman.
- 5—No. 6 Fellows. 1—18" Gleason.

Milling Machines

- 1—No. 4 Cincinnati Universal.
- 1—No. 4-B Brown & Sharpe.
- 2—No. 3 Brown & Sharpe.
- 1—No. 21 Brown & Sharpe.
- 1—No. 24 Brown & Sharpe.
- 3—No. 120—Ohio.
- 1—No. 0 Brown & Sharpe.
- 1—No. 0 Rockford.
- 1—No. 1 Kempsmith.
- 2—No. 25 Becker.
- 2—No. 2-Y Brown & Sharpe.
- 2—No. 1 1/2 Garvin Duplex.
- 4—Type B Briggs.

Vertical Millers

- 2—No. 6 Becker.
- 1—No. 4 Cincinnati.
- 1—No. 3 Becker.
- 2—No. 2 Cincinnati.
- 1—No. 2 Brown & Sharpe.
- 1—No. 5 Becker.

Planers

- 1—72" x34" x12' Gray.
- 1—60" x48" x12' N.-B.-P.
- 1—48" x48" x10' Gray.
- 1—48" x48" x16' Niles-Bement-Pond
- 3—36" x36" x18' Cincinnati.
- 2—36" x36" x8' Ohio.
- 1—36" x30" x20' Whitcomb-Blaisdell.
- 1—26" x26" x10' Gray.
- 2—24" x24" x6' Gray.

Presses.

- 1—No. 54 Bliss.
- 1—No. 59 Toledo.
- 1—No. 10 Z. & H. Percussion.

Grinders

- 1—28—37 1/2" x36" Norton Gap.
- 1—18" x36" Norton.
- 2—16" x50" Norton.
- 1—14" x72" Norton.
- 4—14" x50" Norton.
- 1—12" x120" Landis.
- 1—10" x120" Norton.
- 1—10" x72" Norton.
- 1—10" x52" Landis.
- 6—10" x50" Norton.
- 1—No. 14, 10" x18" B. & S.
- 4—10" x24" Norton.
- 2—10" x36" Norton.
- 3—No. 12 1/2 x36" B. & S.
- 7—6" x32" Norton.
- 1—No. 60 Heald.
- 9—No. 70 Heald.
- 1—Bath Universal.

Miscellaneous

- 1—No. 0 Mitts & Merrill Keyseater.
- 1—No. 6 B. & K. Duplex Pipe Mch.
- 1—15 ton Lucas Forcing Press.
- 1—12" x12" Racine Hack Saw.
- 1—Oil Gear Forcing Press.

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CHICAGO, ILL. Cable Address Remand

Machines of Quality

MACHINES OF THIS TYPE ARE HARD TO FIND

- 20"x12" American Geared Head Lathe with taper attachment.
- 36"x14" Lodge & Shipley Triple Geared Lathe.
- 36"x16" Lodge & Shipley Geared Head Lathe, light pattern.
- No. 2 W. & S. Turret Lathe, power feed to turret.
- 2A W. & S. Tur. Lathe. arr. for bar & chucking.
- 36"x36"x20" Pond Planer, 2 rail heads and one side head.
- 60" Brown & Sharpe Spur Gear Cutter.
- No. 255 Heald 12" Rotary Surface Grinder.
- 22" Pratt & Whitney Vertical Surface Grinder, 72" table, large magnetic chuck and 3 new wheels.
- 10"x36" Norton Plain Grinder.
- 10"x50" Norton Plain Grinder.
- 14" Pratt & Whitney Vertical Surface Grinder.
- No. 4 16"x72" Cincinnati Universal Grinder.
- 4" Cincinnati Plain Radial.
- 6" Cincinnati Bickford Full Universal Radial.
- No. 2 Baker Keyseater.
- No. 2 Cincinnati High Power Milling Machine, single pulley drive, rapid power traverse.
- No. 2 Cincinnati Vertical High Power Miller with rotary table, power feed to rotary table.
- No. 3 Cincinnati High Power Miller s. p. d.
- No. 4 Cincinnati Plain High Power Miller.
- No. 3-B B. & S. Heavy Plain Miller, s. p. d.
- 60" King Vertical Boring Mill.
- 20" Gould & Eberhardt Shaper, single pulley drive.

THE MOTT & MERRYWEATHER MACHINERY CO.

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Mechanics appreciate our
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Partial list herewith—

CENTERING MACHINES

Centering machines, single spindle Cadillac.

ENGINE LATHES

- | | |
|---|--|
| 12"x6' Seneca Falls tool room. | 16"x 8' Bradford, c. r., loose change gear. |
| 16"x 8' Monarch, compound rest, standard pattern. | 18"x8' Cincinnati, q. c. g., taper, draw in. |
| 14"x 6' Porter, compound rest and taper attachment, l. c. g. | 16"x 8' Walcott, c. r., q. c. g. |
| 16"x8' Rockford, 3 step cone, d. b. g., c. r. and t. a., semi quick change. | 18"x10' Walcott, 3 step cone, d. b. g., semi quick change. |
| 18"x8' Boye & Emmes q. c. g., s. b. g. | 20"x10' Walcott, 3 step, q. c. g. |

TURRET LATHES AND SCREW MACHINES

- | | |
|---|--|
| No. 00 Brown & Sharpe auto. | 12" W. & S., friction head. |
| 1" Foster, plain head, a. c. and b. f. | No. 2 Warner & Swasey, p. h., a. c. and b. f. |
| No. 3 Foster g. f. h. turret screw mach., with p. f. carriage and turret. | No. 4 Warner & Swasey, g. f. h., a. c. b. f., power feed turret. |
| No. 3, 1 1/2" Woods tilted turret. | No. 6 Warner & Swasey friction head, auto chuck, h. f. t. |
| 1"x7" Millholland, p. h., a. c. & b. f. | |
| No. 55 Nat'l Acme 4-spld. auto. | |

DRILLING MACHINES

- | | |
|---|---|
| 20" Barnes Plain Lever Feed. | No. 30 Natco, belt driven. |
| 3' Western Gear Box, single pulley drive with t. a. | No. 40 Natco Straight Line Multiple Spindle Drill, 8-spindle head with two speeds in head. |
| 4' Mueller, gear box, sgl. pulley dr. | No. 44 Colburn, sgl. sp. heavy duty, 2 1/2" cap., with solid sp. and flange for receiving multiple drill heads, new, (2). |
| 5' Americans, triple grd., 8-speed change, gr. box, sgl. pulley drive. | No. 34 Demco high speed bench drill with C spindle, new. |
| 12-spindle Moline, cam fd., two tbl. | Footo Burt 1-spindle heavy duty. |
| No. 22 Colburn, sgl. sp., hvy. duty, 1 1/2" cap., with solid spindle and flange for receiving multiple drill heads, new, (2). | |

The Strong, Carlisle & Hammond Co.,

Hammond Company Antee Back of Every Machine Tool

Let us have your inquiries.

MILLING MACHINES

No. 6 Whitney hand, (2).
No. 3 Pratt & Whitney hand miller.
No. 1 Toledo hand millers, (2).
No. 0 Bickett, hand, bench type, (3).
No. 2 Cincinnati vertical, s. p. d.
No. 6 Becker vertical.

Becker 2-spindle, with rotary table.
Briggs Type "A" motor driven with motor.
No. 3 Brown & Sharpe Plain, cone drive, with taper nose spindle.

SHAPERS AND PLANERS

20" Hendey friction, (2).
16" Smith & Mills b. g., crank.
16" Smith & Mills plain, crank.
25" Smith & Mills Back Geared Crank.
22"x22"x 5' Putnam planers, (2).
35"x35"x10' Pond, 2 heads on rail.

26"x30"x6' Cleveland open side one rail head, one side head, new.
48"x60"x16' Cleveland open side, two heads.
28"x28"x8' Gray Planer, one head on rail.

GRINDERS

30"x34" Diamond Face Grinder, belt driven.
No. 3 Diamond wet tool grinder with drop apron, new.
No. 4 Diamond wet tool grinders with drop apron, new.
No. 6-A Bryant internal.
Webster & Perks, h. s., b. b., double spindle polishing lathes, cabinet base (6).
No. 10-18" Besly disc grinder.

No. 3 Brown & Sharpe planer type
No. 11 Brown & Sharpe pl. grinders, surface grinder.
No. 14-45" B. & S. plain, (2).
No. 3 Modern universal.
Gisholt universal form tool grinder.
Type "DE" Hisey-Wolf internal.
C3A Grand Rapids duplex drill grinders with wet att., new.
Landis Internal, with countershaft.

MISCELLANEOUS

Arbor press, No. 28 Atlas.
Boring and Turning Mill, 52" Bullard
Vertical 2 swivel heads, motor dr.
Boring Mill, 34" Bullard Rapid Production with side head, belt driven.
Hand brake, 5' Dreis & Krump.
Pipemachine, No. 300 Oster, 1" to 2".

Pipe machine, 8" Jarecki, No. 88.
Power Press, Max Arms S. S. Plain, 5" stroke, on inclined legs.
Power press, P-4 Ferracut Plain.
Slotter, No. 2 Garvin Duplex.
No. 3 Rockford plain.

Cleveland, Ohio; Detroit, Michigan

High Grade Machine Tools

Boring Mills

- 1—Bullard 42" Vertical.

Broaches

- 1—LaPointe No. 4 Hydr. D.M.D.
- 3—LaPointe Nos. 1-2 and 3.

Drills

- 3—Avey Nos. 1½ H. S. S. S.
- 4—Sipp 16" High Speed S. S.
- 2—Acme 6D Semi-Auto. Drilling.
- 1—American 26" S. S.
- 7—Aurora 21-24" S. S.
- 2—Barnes Camel back 24".
- 6—Cincinnati 21-26" S. S.
- 3—Superior 20"-26" S. S.

Drills—Multiple

- 1—Avey No. 1½ 2-sp. High Speed
- 1—Kingsbury 4-sp. Horiz. D.M.D.
- 1—Rockford, 4-spindles.
- 2—G. & E. 2-spindle High Speed.

Gear Shapers

- 8—Fellows No. 6 and 36".

Grinders

- No. 2 Diamond Auto-Sur. Grinder.
- 19—Norton Pl. Ext. 6x32, 10x24, 10x36, 10x50, 10x72, 14x72.
- 13—Heald Int. Nos. 60-65-70-75.
- 1—Besly No. 14 Disc.
- 1—Besly No. 6 Dbl. End. Auto.
- 1—Gardner Disc.
- 1—W. & M. No. 1 Sur. Grinder.
- 1—Brown & Sharpe Universal.
- 2—Rivett No. 205 Radial.
- 1—Rivett Univ. No. 6 Internal.
- 2—Landis No. 3 Universal.
- 1—B. & S. No. 11 Plain Ext.
- 3—Bryant Chuck. Nos. 6 & 15A.

Lathes—Engine—Miscellaneous

- 1—Hamilton, 16x6, B. G., Q. C.
- 1—Lodge & Shipley 16x6, 18x8, 20x10, 22x10, B. G., Q. C.
- 1—Sidney 20x10, B. G., Q. C.
- 2—LeBlond 17x12, 21x12, B. G., Q. C.
- 5—Greaves & Klumman 18x6, 18x8, 30x8, B. G., Q. C.
- 3—Chard 16x6 & 24x11 B. G., Q. C.
- 4—American 14x6, 16x6, 18x8, 16x10½ B. G., Q. C.
- 1—L. & S. Duplex 12x24" Cr. Pin.

Lathes—Turret and Screw Mchs.

- 4—Foster No. 1-B—20" swing.
- 2—Potter & Johnson No. 6A.
- 2—Gisholt No. 2, D. M. D.
- 2—Gisholt No. H21.
- 1—Warner & Swasey No. 6.
- 1—Millholland 1" D. M. D.
- 2—Pratt & Whitney 20".
- 2—B. & O. No. 4.

Milling Machines—Vertical

- 2—Becker No. 5 and No. 6.
- 1—Knight No. 1½.

Milling Machines—Horizontal

- 1—Milwaukee No. 3B Double overarm, Vertical Head.
- 2—Milwaukee No. 2BS Dbl. over.
- 1—No. 2 Cincinnati Universal.
- 1—B. & S. No. 1½ B, S. P. D.
- 2—Brown & S. No. 2B and 12.
- 1—St. rtoe Hand with Vert. Att.

Milling Machines—Slab

- 1—Ingersoll 30x30x10', 3 heads.

Planer

- 1—American 30x30x10', 3 heads.

Presses

- 1—Toledo No. 92½E.

Saws

- 1—Atkins Power No. 7.
- 1—Peerless 6x6.

Screw Machines—Automatic

- 1—New Britain No. 24 Mult. spdl.
- 4—Gridley ¾" 4-spindle.
- 1—Cleveland 2" S. S.
- 3—National Acme Nos. 53 and Multiple spindle.

Shapers—Crank

- 1—American 16" Hi Duty.
- 2—Steeptoe 16".
- 1—Lodge & Davis.

Tappers

- 1—Rickett No. ¾ D Horiz.
- 2—Garvin Vertical.

Welding Outfits

- 1—Prest-O-Lite Type D. Portable.
- 1—Thompson Electric Type 101.
- 1—Gibbs Type 55 Spot.

Miscellaneous

- 1—Crescent Rip and Cross Cut saw table and 5 H. P. motor.
- 1—190 H. P. Synchronous motor.
- 3—Generator Sets.

The Indianapolis Machinery & Supply Co.

1959 S. Meridian St.,

Indianapolis, Indiana

Some Attractive Machines

- 2—6"x32" Norton Grinders, serials 9200.
- 1—16"x96" Landis Grinder.
- 1—14"x72" Norton Grinder.
- 1—No. 70 Heald internal Grinder, 2100 ser.
- 6—No. 6 Whitney hand Millers.
- 1—No. 2X Garvin Automatic Tapper.
- 1—No. 119 Bliss cap Thread Roller.
- Several Clevelands, 1/2 to 2", both A and B models. High serials.
- 1—1 1/4" Gridley Multiple, serial 8167.
- 1—Sipp ball bearing Drill.
- 1—Henry & Wright, 15" overhang Drill.
- 1—Henry & Wright, 7" overhang Drill.
- 3—26" W. F. & J. Barnes back geared Drills.
- 1—28" W. F. & J. Barnes back geared Drills.
- 1—No. 4 Quint turret Drill.
- 1—No. 4 Bardons & Oliver Screw Machine.
- Several small hand Screw Machines, Garvin, Pratt & Whitney, Brown & Sharpe.
- 1—No. 7 Zeh & Hahneman percussion Screw Press 50 ton size, nearly new.
- 1—15" Dill Slotter, very fine condition.
- 1—3 1/2' Western Radial Drill, single pulley dr.
- 2—2 spindle Allen ball bearing Drills.
- 1—No. 19-C Bliss O. B. I. Press,
- 1—No. 4 R. & K. O. B. I. Press.

250 others, lathes, screw machines, grinders, drills, presses, punches and shears, etc.

We buy, sell and trade. What do you need?

A. D. White Machinery Co.

108 N. Jefferson St.,

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NEW 3 PHASE MOTORS CHEAP—FROM ½ H. P. UP

LATHES

12"x 8' Cleveland, geared head.
14"x 6' Carroll-Jamieson, new, q. c.
14"x 6' Hamilton, grd. hd., motor dr.
14"x 6' Monarch, quick change.
14"x 6' Sebastian, grd. hd., m. d.
14"x 6' Worcester.
14"x 8' Sidney, double back geared.

16"x 8' Hamilton, quick change.
18"x 10' American, quick change.
20"x 10' Hamilton, rapid production.
20"x 10' Prentice, taper attachment.
24"x 24' Prentice, with raising block.
8x60" & 3½x60" Fitchburg, Lo-Swing
South Bend, new, all sizes.

TURRET LATHES and SCREW MACHINES

No. 52 National Acme automatic.
No. 53 National Acme automatic.
No. 54 National Acme automatic.
5" capacity Acme.
No. 4 Deance, 1½" capacity.

1½" capacity Smurr & Kamen.
1½" Milholland.
2x24 and 3x36 J. & L.
No. 1 Foster, 13/16" capacity, (2).

SHAPERS

14" Niles, traveling head.
14" Steptoe, crank.
16" Barker.

16" O. & S., b. grd., new, low price.
24" O. & S. back geared crank.

PRESSES

No. 10 and No. 15 Excelsior, foot.
Nos. 3-A & 5-A Willard inclinable.
Nos. 1, 1½, 2, 2½ Robinson, new.

No. 4 Federal o. b. l.
No. 8 Federal o. b. l.
Emco bench.

DRILLS and RADIALS

No. 1 Baush multiple.
Baush 5' radial.
Hilbert 3' radial.
22", 24", 26", 28" and 32", sliding hd.
32" Hoefler, sliding head.

6' Ceiling drill.
23" Kokomo high speed.
44" Stover.
Sipp high speed, single-spindle.
Hole Hog, No. 66-D, 7-spindle.

MILLING MACHINES

No. 1½ American plain.
No. 2 Kempsmith plain.
No. 3 Kempsmith plain, new.
No. 4 LeBlond plain.
No. 25 Bilton.

No. 25 Becker plain, power feed.
No. 2 H Brown & Sharpe plain.
Oesterlein 24x7½x18 plain.
Ingersoll 24" x 20" x 8' horizontal
motor drive.

GRINDERS

No. 1 & 78 W. & M. surface.
6"x15" Fitchburg plain.
12"x36" Cincinnati universal.
16"x42" Landis universal.
36" and 60" Yates plate.

No. 60 Heald cylinder.
Schmitt cylinder grinder.
J B X, W. & M. tool and cutter.
No. 10 Besly 18" double disc.
No. 20 Bryant, chucking.

MISCELLANEOUS

Band saw, Clark, compound.
Band saw, Napier 10"x10".
Blower, No. 6 Piqua, pressure.
Blower, positive pressure, Leiman
Boring mill, Colburn No. 3, tur. hd.
Brake 10', Keene, 18 ga.
Brake, 12' Chicago Steel 18 gauge.
Broaching mchs., 1 and 3 LaPointe.
Compressors, 6x8, 8x8 and 9x8.
Gear cutter, No. 3—26 B. & S.
Gear cutter, No. 13 Brown & Sharpe.
Gear miller, Bilton No. 1.
Hammer, 150 lb. Standard drop.
Pipe machines, 2", 4" & 6".
Planer, 36"x36" Gray, heavy duty.

Planer, 24"x24"x6'.
Planer, 36"x36"x14' Gray, 2 heads.
Planer, 42"x42"x12' Gray, 2 heads.
Planer, 45"x45"x16' Cincinnati, 4 hd.
Punch & shear, ½x½x10" throat.
Riveting hammers, Nos. 1, 2, 3, 4-A
High Speed.
Sand blast, Boland.
Scale, 1500 lb. Toledo, dial type.
Shear, 60" Peck, Stow & W., 18 ga.
Shear, No. 362 Robinson.
Shear, No. 562 Niagara.
Shear, circular, Pettingell, 60" thrt.
Threading mche., W. & P. 2-spindle.
Washing machine, Blakeslee.

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BOLT CUTTERS

- 1—Acme 1", 2-apdl., with lead screw.
- 1—Acme 1", 3-apdl., with lead screw.

BROACHES

- 3—Hudson LaPointe No. 1.
- 1—J. N. LaPointe No. 3, double spindle, belt drive.
- 1—J. N. LaPointe No. 3, double spindle, motor drive.

DRILLS

- 2—25" Aurora sliding head.
- 2—21" Cincinnati sliding head.
- 1—24" Kokomo sliding head.
- 1—21" Kokomo sliding head.
- 2—25" Snyder sliding head.
- 1—L. & G. single spindle, h. s., b. b.
- 1—2-sp. Henry & Wright h. s., b. b.
- 1—Allen 4-spindle, h. s., b. b.
- 1—Sipp 3-spindle, h. s., b. b.
- 1—Foote-Burt 14.
- 1—24" Carlton Radial.
- 1—Bausch 3-way multiple drill; one head mounted horizontally in the rear, 2 1/2" x 17 1/2" opening bored for 16 spindles; equipped with 9 1/2" No. 1 M. T. spindles; R. H. horizontal head 32" wide 21" high opening. Bored for 34 spindles, equipped with 13 1/2" spindles. L. H. Horizontal head opening 32" wide and 18" high; bored for 34 spindles, equipped with 12 1/2" No. 2 M. T. spindles; 10 extra spindles and brackets with machine; arranged for motor drive.
- 1—Pratt & Whitney Gun Drill.
- 1—2-way Barnes.
- 1—2-way Rockford.

GRINDERS.

- 3—6x32 Norton plain cylindrical.
- 1—10x18 Norton plain cylindrical.
- 1—10x36 Norton plain cylindrical.
- 1—12x72 Landis pl., self contained, motor drive.
- 1—Bath universal.
- 2—Gisholt cutter grinders, motor dr.
- 1—No. 1 Morse Plain.
- 2—Oliver drill grinders, motor drive.
- 1—Oliver drill grinder, belt drive.

GEAR CUTTING

- 1—SA Lees-Bradner Hobber.

LATHES

- 2—16x6 Monarch screw cutting.
- 2—21" LeBlond Manufacturing.
- 1—No. 8 Warner & Swasey Turret.

MILLING MACHINES

- 3—Model C Becker, rotary table.
- 1—18" Cincinnati mfg. knee type.
- 1—Kent-Owens semi-automatic.
- 1—14" Cincinnati semi-automatic.
- 1—18" Cincinnati semi-automatic.
- 2—Pratt & Whitney No. 2 plain.
- 1—Becker semi-automatic duplex.
- 1—Gooley & Edlund, Lincoln Type A
- 1—2M Potter & Johnston automatic.

SHAPERS

- 1—20" Kelly Crank Shaper.
- 1—16" Ohio.

TAPPING MACHINES

- 2—2X Garvin automatics.
- 2—Gateman automatics.
- 2—Rickert & Shafer automatics.

AUTOMATIC THREADING MACHINES

- 2—Rickert & Shafer single spindle horizontal automatics, motor dr.

SCREW MACHINES

- 2—No. 7 Bardons & Oliver.
- 1—No. 8 Warner & Swasey.
- 1—5A Potter & Johnston. 21000 serial.
- 1—2" Model B Clev., 33000 ser., m.d.
- 1—No. 53 New Britain.

MISCELLANEOUS

- 2—40 lb. Bradley Hammers.
- 1—Knowles Keyseater.
- 1—No. 6 Niagara Geared Press.
- 1—Toledo Butt Welder.
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20" American, Hvy. Duty, B. G.	850.
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16" Smith & Mills Shaper.

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No. 3 Cincinnati Universal.

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BAND SAW—26" Crescent for wood.

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 Toledo Grd., No. 3-A Bliss Adjust. Bed; No. 16 Bliss Hor. Pr.
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16"x8' Rockford, q. c., (new).

16"x8' Cincinnati, q. c.
18"x8' Boye & Emmes, q. c.
18"x8' Lodge & Shipley, quick chg.
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20" Barnes all geared.
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Cleveland automatics, 8", 10", 12".
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MISCELLANEOUS

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- 1—No. 3 Cincinnati Plain Milling Machine.
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- 1—No. 1 Brown & Sharpe Universal Milling Machine.
- 1—No. 0 Van Norman Duplex Miller.
- 1—No. 1½ Brown & Sharpe Universal Milling Machine.
- 1—No. 2 La Pointe Double Spindle Broaching Machine.
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- 1—No. 0 Brown & Sharpe Forming Machine.
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37 $\frac{1}{2}$ "x14' Johnson d. b. g., q. c. f., t. a.	28"x10' Niles, q. c. g.
32"x12' Pittsburgh, heavy duty, q. c. g.	19"x10' Draper, patent head,
27"x12' Bullard.	and many others.
26"x11' Wickes, q. c. g.	

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34"x25" Pond, triangular pattern.	No. 3 Foster sc. machine 1-5/16"
3x36" Pratt & Whitney, hollow hex.	wire feed.
19"x7' Fay & Scott, back grd.	14"x9" Cincinnati-Acme, wire feed.
No. 22 $\frac{1}{2}$ Garvin Monitor.	No. 2 Smurr & Kamen, wire fd., (5).
14"x 4' Warner & Swasey.	

DRILL PRESSES

48" Almond, sens. radial, post type.	26" Aurora, sliding head.
40" Barnes horizontal radial.	24" Foote-Burt heavy duty.

MILLING MACHINES

No. 3 Brown & Sharpe, plain, cone type.	No. 3 Becker-Brainard, new model,
No. 1 Van Norman hand miller.	q. c. g., vertical attachment.

PLANERS

48"x37"x9' Sellers, 2 heads.	48"x36"x14' Cincinnati, 4 heads.
48"x48"x12' Gray, 2 heads.	30"x30"x8' American, 1 head.

BORING MILLS

48" Bullard, 2 swivel heads.	Boring, drilling and milling machine, Bement-Miles horiz., 4 $\frac{1}{2}$ "
42" Bullard, 2 swivel heads.	bar, 14' 6" bet. heads, with revolving table.
Boring mill, No. 1 Sellers hor., 2 $\frac{1}{2}$ " bar.	
Boring mill, car wheel, 60" Niles.	

PIPE MACHINES

4' & 8" Eaton, Cole & Burnham.

MISCELLANEOUS

Arbor press, No. 3 Greenard.	Presses, Waterbury-Farrel d. a., 2 $\frac{1}{2}$ "
Arbor press, No. 8 Greenard, 36" bet. columns.	5" strokes, 25" bet. housings, auto. roller feed, with cut-off attach., wt. 26000 lbs., new, (3).
Arbor press, 20 ton Weaver.	Punch or gate shears, 72" Cleveland multiple, 15" throat.
Electric hoists, 1-ton cap. (5).	Riveter, air, 6' gap Allen, cap. 1 $\frac{1}{2}$ ".
Gear shaper, No. 35 Fellows, straight and helical heads.	Riveter, air, 6' gap. Allen, cap. 1".
Generator, No. 100 Oxweld acetyl.	Saw, No. 6 Nutter & Barnes (2).
Grinder, disc, No. 17 Bealy.	Saw and column facer, Q. M. & S.
Grinders, double end electric.	No. 4-B universal, 31" blade.
Hammers, 15, 25 & 40 lbs. Bradley helve.	Shear, 8' Ohl, No. 20 ga.
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D. & H. Horizontal Floor Borer 5" bar.
Gisholt 42", Betts 7 $\frac{1}{2}$ "/10" Vertical.
- DRILLS:**----- No. 124 Buffalo Post.
14" Rockford, 20" Snyder, 24" Foote-Burt.
6" Bickford; 5" Prentice; 10" Bausch Radial.
2" Fosdick, 3" Bickford, t. a.
Moline 10-spindle, No. 5 Morse taper.
Baush Multiple Drill, 12-spindle.
14"x6" Hendey, t. a.
18"x8" Lodge & Shipley, q. c. g.
24"x12" Rockford, taper att.
26"x16" Prentice, taper attachment.
36"x18" Porter.
63 $\frac{1}{2}$ "x36" 6" Centers Niles H. D.
18"x12" Roll Turning.
- MILLING MCHES.:**----- Ingersoll Fixed Rail, 24"x21"x20" table.
Ingersoll Slab 30"x30"x12", m. d.
No. 4 Brown & Sharpe Universal.
Candy-Otto, hand power, $\frac{1}{2}$ "x $\frac{1}{2}$ ".
- PUNCH & SHEAR:**----- No. 6 Long & Allstatter S. E.
Roryford No. 3, 16" throat 1"x1".
Wain & Ross 15" throat, $\frac{3}{4}$ "x $\frac{1}{2}$ ".
Cleveland "EF", 36" throat 1 $\frac{1}{4}$ "x1".
Industrial Double End, $\frac{3}{8}$ "x $\frac{3}{8}$ ".
No. 2 Hilles & Jones hor. punch, 8" throat.
Doelger-Kirsten No. 2 Alligator, high knife.
Marshakown No. 10-P Throatless.
Lennox Throatless Shear, $\frac{3}{4}$ " capacity.
Landis No. 5 Cylinder; Bealy No. 3 Disc.
- GRINDERS:**----- Cincinnati 10"x48" Grinder.
Cincinnati 12"x72" Plain Cylindrical Grinder.
- SHAPERS:**----- 14" 20", 24" Gould & Eberhardt, b. g.
- MISCELLANEOUS:**----- Baling Machine with 40 h. p. motor.
Band Saw Metal, Wheels 18", cap. 6".
Brake, Chicago Hand, 72"x1/16".
Hammer, 250 lb. Little Giant m. d.
Planers, Cincinnati 48"x44"x12".
Planer, Flather 48"x48"x16" heavy duty.
Planer, 48"x48"x21" Gray, 3 heads.
Planer, 48"x48"x16" D. & H. Openside.
Planer, 72"x54"x12" Niles-Bement-Pond.
Planer, Detrick & H. Openside, 96"x72"x26".
Presses, No. 0 Consolidated, O. B. I.
Presses, No. 1—No. 3 V. & O.—O. B. I.
Presses, Nos. 18 and 19 Bliss, Perkins.
Press, 50 ton Lourie Hydraulic.
Presses, Arbor, No. 3 $\frac{1}{2}$ Greenerd; No. 1 Atlas.
Profiler, P. & W. table 12"x15", double spindle.
Saws, Hunter 24" hi-speed, m. d.; 18" Higley Cold.
Saw, No. 3 Sterling Hack 9"x9".
Screw Machines, Cone Automatic $\frac{7}{8}$ ", M. D.
Screw Mchs., 2 $\frac{1}{4}$ "x11" Acme; Meriden, 6 hole turret.
Surface Plate, 44 $\frac{1}{2}$ "x61" 8", 6 $\frac{1}{2}$ " thick.
Welder, Westinghouse Arc, with 10 h. p. mtr. compl.
Wire Straightener, Schuster $\frac{1}{4}$ ".

RUSSELL MACHINE COMPANY
1447 Oliver Building, PITTSBURGH, PA.

High Grade Machine Tools

Lathes

36"x21" Johnson Engine Lathe.
36"x18" Fiefield Engine Lathe.
27"x20" Lodge & S., 3 S. C. Q. C.
24"x16" Hendey Yoke Head, Q. C.
22"x18" American Geared Head,
S. P. D. Q. C.
22"x8" L. & S. Q. C. cone drive.
20"x8" Lodge & S. Grd. Hd., Q. C.
18"x8" Hendey, Yoke Head, Q. C.
16"x6" American, Grd. Hd., Q. C.
14"x8" Sebastian Grd. Hd., Q. C.
14"x6" Hendey, Yoke Head, Q. C.

Grinders

No. 70 Heald Grinder.
No. 60 Heald Grinder.
16"x48" Landis Crankshaft Grinder.
10"x52" Landis, self contained, late type
5"x18" Ott Grinder, power feed.
No. 2 Landis, Universal.
10"x36" Landis, self contained.
No. 1 LeBlond Tool Grinder.
Modern Chaser Grinder.

Gear Cutters

No. 2 Schuchardt & Schutte Hobber.
No. 3-26" Brown & Sharpe, late type.
No. 3-36" Brown & Sharpe, late type.
36" Whiton Auto. Bevel & Spur.
No. 1 Farwell Gear Hobber.
18" Schuchardt & Schutte Hobbers.

Boring Mills

42" Bullard, Vertical, 2 heads.
96" Bickford, Vertical.
36" Bullard Rapid Production.
42" Gisholt, two heads, late type.
No. 1 Rockford, Horizontal 2" bar.

Milling Machines

No. 4 Brown & Sharpe, Plain.
No. 3 Cincinnati Univ., cone drive.
No. 3 Cincinnati, plain.
No. 3 Brown & Sharpe, Plain.
No. 14½ Becker Universal.
No. 28 Oesterlein, Plain.
No. 1½ Valley City, Plain.
No. 6 Whitney Hand Millers.

**48x48x16' Detrick & Harvey Openside
Planer, excellent condition....\$2,750.00**

Planers

16x16x36" Pratt & Whitney Planer.
42"x36"x12" Cincinnati, 2 heads.
26"x26"x12" Whitcomb-B., 2 heads.
24"x24"x12" Chandler, 2 heads.
48"x48"x16" D. & H. Opens. 2 hds.

Radial and Upright Drills

5" Cincinnati-Bick., Gr. Box, S.P.D.
3" Carlton, Speedy-Sensitive, cone dr.
26" Cincinnati Upright, C. D.
26" Rockford, T. A., C. D.
26" Rockford Upright, C. D.
24" Hoefler Upright, C. D.
6-spindle Rockford 20" B. G. P. F.
2-spindle Barnes, late type.
20" Barnes Camel Back.

Shapers

16" Steptoe Crank.
16" Gould & Eberhardt Crank.
16" Smith & Mills Crank.

24" Gould & Eberhardt, Crank.
24" Hendey.
20" Steptoe B. G. Crank.

Miscellaneous

1" National Bolt Cutter, complete.
1½" Acme double spindle Stay Bolt
Cutter, with Landis Heads.
No. 2 Kane & Roach Multiple P. & S.
50 lb. Little Giant Hammer.
No. 2 Mitts & Merrill Keyseater.
No. 3½ Baker Keyseater.
½" Landis Double Spdl. Bolt Cutter.
No. 42 Toledo Press.
Whiting Punch & Shear, No. 8, 36"
throat, 1" thru 1"
Wickes Punch & Shear, 48" throat,
1¼" thru 1¼".
No. 8 Long & A. Punch & Shear.
No. 1 Badger State Alligator Shear.
10" Bertsch Power Squaring Shear,
14 gauge.

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Bolt Cutters, 1½" Wells, 2", 2½"
Landis, dbl. hd.
Bolt Threader, 2 Sp, Namco, ½" to
½" cap.
Boring Mills, 24" Bullard, prod. type.
42" Gisholt Vertical.
42" Bullard New Era.
96" Niles vert., 2 hds.
Boring Bar, No. 0 D. & H., 3½" bar.
Drills.....D-66 Moline, 4 sp.
"Hole Hog."
No. 3 Bausch, 19 sp.
No. 30 Natco, 48 sp.
No. 41 Natco.
Radial, Cleveland wall.
Radial, 3" Marsh Sens.
Radial, 3" Cinti-Bick.
Radial 3" Mueller.
Radial 5" Cin.-Bick. Univ.
Radial, 6" American.
Grinders.....No. 1 W. & M., Univ.
No. 1 B. & S., Universal.
No. 16 B. & S. 10x72 Pl.
10"x50" Norton.
84" Diamond Face M.D.

Hobbers.....Barber-C. Nos. 3 & 12.
Lathes.....14"x8" American, M. D.
18"x8" Bradford.
24"x12" L. & S. Crank.
Millers.....No. 2-A Becker Vertical.
No. 2-B K. & T. Pl.
dbl. overarm.
No. 3 Cincinnati, Plain.
Thread, 6"x80" P. & W.
Pipe Mche.....6" Landis.
Planers.....16" Niles plate.
32"x32"x8" Gray.
36"x36"x12" Cleveland.
Presses.....Bliss N-1 Dbl. Act. Cam.
No. 21-B Bliss, O. B. I.
Geared.
Nos. 3 & 4 American
Can, O. B. I.
Saw.....No. 12-B Higley Cold.
Screw Mches., Nos. 5 and 6 Wood
Tilted.
No. 7 Foster, friction head.
Shapers.....24" G. & E., back geared.
Shear.....4", 12 ga. Loy & Nawrath,
Power.

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Fosdick Horizontal Boring, Mill-
ing and Drilling.
Millers,----- Pratt & Whitney No. 12 Lincoln
Type.
Screw Machines,.. Brown & S. No. 0 Automatic.
W. & S. No. 6 Friction Grd. Hd.
Millholland No. 3 Geared Head.
Squaring Shear, .. Stow No. 296 Power, 97"x14
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Straightening Roll, Bertsch No. 7½, cap. 50"x¾" plate.

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- 1—Bullard 36" r. p., side head.
- 1—Baush 42" vertical, 2-heads.
- 1—Niles 42" vertical, 2-heads.
- 1—Putnam 44" vertical, 2 heads.
- 1—Sellers 72" vertical, 2 heads.
- 1—Betts 12" vertical, 2 heads.
- 1—N-B-P 10-16" vertical, 2 heads.
- 1—Pond 10-24" vertical.
- 1—Betts 16-24" extension vertical.
- 1—Cleveland 24" bar, horizontal.
- 1—Pawling & Harnischfeger 34" bar
- 1—Detrick & Harvey 4" bar, hor.
- 1—N-B-P 44" bar, duplex cont. hor.
- 1—Rockford No. 2 horizontal.

DRILLS—Multiple Spindle

- 16—Baush Nos. 1, 2, 3 and 4.
- 5—Detroit 5-spindle.

DRILLS—Upright

- 2—Barnes 20" and 24" camel back.
- 1—Foote-Burte 4-spindle.
- 6—Henry & Wright 2, 3, 4, 6-spdl.
- 2—Pratt & Whitney No. 2 gun bri.
- 1—New Turner No. 3 vertical.

DRILLS—Radial

- 1—Cincinnati 3'.
- 3—Western 3' plain.
- 1—American 4' plain, trip. purpose.
- 1—Baush 6'.
- 2—Drees 5', 6' plain.
- 1—Cincinnati Bickford 6' plain.
- 1—N-B-P 96" plain.
- 1—Cincinnati Bickford 6' universal.

GEAR CUTTERS

- 7—B. & S. 3x26, 3x36, 4x36.
- 1—Gould & Eberhardt 36".
- 3—B. & S. No. 6, 60" cap.
- 1—G. & E. No. 18-H.
- 1—Cincinnati 16" Gear Hobber.
- 3—Fellows Gear Grinders.
- 4—Gleason 6", 11", 18".
- 1—Gleason 24" bevel gear planer.
- 5—Fellows Nos. 6, 61, 65, 615.

GRINDERS

- 3—B. & S. Nos. 1, 2, 3.
- 4—Cincinnati No. 2, 12x36, plain.
- 9—Landis 6x18, 10x24, 10x36, 12x36, 12x96 plain.
- 7—Norton 3x18, 6x32, 10x24, 10x36, 10x50, 16x36, 10x72 plain.
- 2—Landis 10x52 cam.
- 1—Springfield Brandes vert. grinding planer.
- 1—Persons Arter 8" surfacer.

- 12—Heald Nos. 65, 60, 70.

- 1—Bath Spline.

HAMMERS

- 1—New Bradley 30 lb. helve.
- 1—Chambersburg 400 lb. bd. drop.
- 1—B. & S. 800 lb. drop.
- 1—Toledo 1500 lb. bd. drop.

MILLING MACHINES

- 6—B. & S. Nos. 2, 2B, 3, 4, plain.
- 8—Cincinnati Nos. 2, 3, 3-S, 4 plain.
- 2—Garvin No. 134 plain.
- 1—Cincinnati No. 2 vert., cone dr.
- 13—Becker Nos. 3H, 4B, AB, 5C, 6, C1, vertical.
- 7—P. & W. 44x12, 6x14, 6x48, 6x80 th.
- 11—P. & W. 5", 8", 10", 12" auto.

LATHES

- 6—Lodge & Shipley 18"x8' selective gear head, with taper att.
- 3—LeBlond 26"x10' duplex crank.
- 1—Johnson 30"x12", m. d.
- 1—Hendey 24"x12".
- 1—Bridgeford 42"x38"; grd. hd.
- 1—American 36"x24".

Lathes of all sizes and types.

SCREW MACHINES—Automatic

- 14—Cleveland 12", 14", 16", 18", 20", 22", 24", 26", 28", 30", 32", 34", 36", 38", 40", 42", 44", 46", 48", 50", 52", 54", 56", 58", 60", 62", 64", 66", 68", 70", 72", 74", 76", 78", 80", 82", 84", 86", 88", 90", 92", 94", 96", 98", 100", 102", 104", 106", 108", 110", 112", 114", 116", 118", 120", 122", 124", 126", 128", 130", 132", 134", 136", 138", 140", 142", 144", 146", 148", 150", 152", 154", 156", 158", 160", 162", 164", 166", 168", 170", 172", 174", 176", 178", 180", 182", 184", 186", 188", 190", 192", 194", 196", 198", 200", 202", 204", 206", 208", 210", 212", 214", 216", 218", 220", 222", 224", 226", 228", 230", 232", 234", 236", 238", 240", 242", 244", 246", 248", 250", 252", 254", 256", 258", 260", 262", 264", 266", 268", 270", 272", 274", 276", 278", 280", 282", 284", 286", 288", 290", 292", 294", 296", 298", 300", 302", 304", 306", 308", 310", 312", 314", 316", 318", 320", 322", 324", 326", 328", 330", 332", 334", 336", 338", 340", 342", 344", 346", 348", 350", 352", 354", 356", 358", 360", 362", 364", 366", 368", 370", 372", 374", 376", 378", 380", 382", 384", 386", 388", 390", 392", 394", 396", 398", 400", 402", 404", 406", 408", 410", 412", 414", 416", 418", 420", 422", 424", 426", 428", 430", 432", 434", 436", 438", 440", 442", 444", 446", 448", 450", 452", 454", 456", 458", 460", 462", 464", 466", 468", 470", 472", 474", 476", 478", 480", 482", 484", 486", 488", 490", 492", 494", 496", 498", 500", 502", 504", 506", 508", 510", 512", 514", 516", 518", 520", 522", 524", 526", 528", 530", 532", 534", 536", 538", 540", 542", 544", 546", 548", 550", 552", 554", 556", 558", 560", 562", 564", 566", 568", 570", 572", 574", 576", 578", 580", 582", 584", 586", 588", 590", 592", 594", 596", 598", 600", 602", 604", 606", 608", 610", 612", 614", 616", 618", 620", 622", 624", 626", 628", 630", 632", 634", 636", 638", 640", 642", 644", 646", 648", 650", 652", 654", 656", 658", 660", 662", 664", 666", 668", 670", 672", 674", 676", 678", 680", 682", 684", 686", 688", 690", 692", 694", 696", 698", 700", 702", 704", 706", 708", 710", 712", 714", 716", 718", 720", 722", 724", 726", 728", 730", 732", 734", 736", 738", 740", 742", 744", 746", 748", 750", 752", 754", 756", 758", 760", 762", 764", 766", 768", 770", 772", 774", 776", 778", 780", 782", 784", 786", 788", 790", 792", 794", 796", 798", 800", 802", 804", 806", 808", 810", 812", 814", 816", 818", 820", 822", 824", 826", 828", 830", 832", 834", 836", 838", 840", 842", 844", 846", 848", 850", 852", 854", 856", 858", 860", 862", 864", 866", 868", 870", 872", 874", 876", 878", 880", 882", 884", 886", 888", 890", 892", 894", 896", 898", 900", 902", 904", 906", 908", 910", 912", 914", 916", 918", 920", 922", 924", 926", 928", 930", 932", 934", 936", 938", 940", 942", 944", 946", 948", 950", 952", 954", 956", 958", 960", 962", 964", 966", 968", 970", 972", 974", 976", 978", 980", 982", 984", 986", 988", 990", 992", 994", 996", 998, 1000

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- 1—Acme Fox Monitor.
- 6—Foster Nos. 2, 4, 6.
- 4—Greenlee 24x26.
- 16—J. & L. 24x24, 3x36.
- 1—W. & S. No. 6.
- 1—B. & S. No. 6.
- 1—Steinlee 24" Turret.

PLANERS

- 2—Putnam 36x26x8', 2 heads.
- 1—Gray 38x38x20', 3 heads.
- 1—Woodward & P. 36x36x16', 4 hds.
- 1—Detrick & Harvey 30"x10', single head, openside.

SHAPERS AND SLOTTERS

- 2—Gould & Eberhardt 20", 24".
- 2—Cincinnati 16", 20".
- 1—Dill 15-18" Slotter.
- 1—Niles 30" Slotter.

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No. 90-B Toledo s.s., 36" bet. hous.
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21" between housings.
No. 15 Waterbury Plain, s. s., 24"
between housings.
No. 39 Bliss Horn Press.
Nos. 42 and 44 Toledo Horn Press.

Drills

2-Avey single-spindle, B. B.
1-Henry & Wright sgl.-spdl., B. B.
1-Taylor & F., 4-spdl. adj. column.
1-Barr six-spindle, power feed.
1-5' American pl. radial, tr. geared.
1-6' Drees plain radial, motor dr.
1-3' Mueller plain radial, cone dr.

Punches

No. 6 Whiting s. c., B. G., $\frac{1}{4}$ thru $\frac{1}{2}$.
No. 4 Long & A. sgl. end., $\frac{1}{4}$ thru $\frac{1}{2}$.

4-No. 15 Toledo deep throat.
Bertsch Rapid Production, 18" thrt.,
archit. jaw.

Shapers

24" American B. G., Crank.
24" Queen City Heavy Duty, B. G.,
Crank.
20" Steptoe B. G., Crank.
16" Steptoe B. G., Crank.
16" Ohio Plain, Crank.

Millers

No. 1 $\frac{1}{2}$ Valley City Plain.
No. 1-B Brown & Sharpe Cone Dr.
No. 1 $\frac{1}{2}$ Cincinnati Universal.
No. 2 Cincinnati Plain, 3 step, d.b.g.
No. 3 B. & S. Plain, Cone Drive.
No. 2 Becker Vertical.
No. 2 $\frac{1}{2}$ LeBlond Universal.
No. 3 LeBlond (Univ.) Cone Drive,
3 step, d. b. g.

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ENGINE LATHE, 26x10 Bridgeford, hvy. duty taper att.
ENGINE LATHE, 26x12 Wickes, heavy duty.
ENGINE LATHE, 30x12 Bridgeford, heavy duty.
ENGINE LATHE, 36x24 Schumacher & Boye, triple grd.
RADIAL DRILL, 3 ft. Bickford, five step cone drive.
RADIAL DRILL, 3 $\frac{1}{2}$ ft. Bickford, single pulley drive.
RADIAL DRILL, 5 ft. Bickford, single pulley drive.
PLANER, 24x24x8 Whitcomb, two heads on crossrail.
PLANER, 26x26x8 Pond, single head.
PLANER, 60x60x12 Pond, two heads on crossrail.
GEAR CUTTER, No. 5-60 in. Brown & Sharpe.
GEAR CUTTER, No. 3-36 in. Brown & Sharpe.

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 24x24x12 Ing. Hor. Spd. Slab Miller—30" American Plain Radial Drill, T. A.
 24x24x6 and 30x30x10 Cincinnati Planers 1-hd.—22x22x5 Gray Planer 1-hd.
 48x48x8 Sellers, 48x48x18 New Haven Planers 1 hd.—60x60x18 Pond 2 hds.
 No. 54 Lees Bradner Auto. Thread Miller—No. 3 B. & S. Auto. Gear Cutter.
 Nos. 2, 3 and 6 New Tilted Turret Lathes—16x8 Bradford Q. C. G. Lathe.
 20x10 Davis Q. C. G. Lathe—21x12 LeBlond Q. C. G. Lathe—24x12 Amer.
 Pond 48x40 Ft. Triple Grd. Engine Lathe—16" Stockbridge Grd. Crk. Shaper.
 No. 5 Crosby Stiles Type Punch Press 2½" str.—No. 4 R. & K. O. B. I. 1½ str.
 No. 256B Toledo Dbl. Crank S.S. Pr 4" str.—No. 4 P. & W. Trim. S.S. 3" str.
 80-Lb. Bradley Long Arm Helve Hammers—500 Lb. Beaudry Power Hammer.
 50-Ton Vert. Hyd. Press 2-column—Chgo. Fdy. Co. Allig. Shear cap. 2½" sq.
 No. 2 Carlin Alligator Shear 5x5 cap.—Lennox ¾x6 Rotary Splitting Shear.
 No. 2 Bethlehem Rotary Shear.
 10" Putnam, 16" Betts and 20" Niles Vertical Slotters.
 24" Steimle Turret Lathes—Gardham 4-Spindle Multiple Drill.
 1½ & 2½" Nat'l Dbl.-Hd. Bolt Threading Machines—1½" Ajax Forging Mch.
 20" Newton Cold saw Cut-Off Machine—66" Allen Jaw Riveter.
 6 Ft. Niles Type Plate Bending Roll cap. ½" plate.
 6" Globe Cut-off Machine—Acme 4-Spindle Vertical Nut Tapping Machine.
 Gridley ¾ Sgl. Spdl. Auto. Screw Mchs.—Cleveland Sgl. end Shear 20" blade.
 Morgan Double-end Punch and Shear 24" thro. cap. 1" thru 1".
 36" Cleveland Single-end Punch cap. 1" thru 1"—15" cap. Pels I-Beam Shear.
 Newton Hor. Boring Mill 2½" bar—Std. Eng. Co. Beam Notcher 16" stroke.

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Machines That Are Hard To Find

4" Triple Purpose American Radial Drill, motor drive.
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 6" Niles Bement & Pond Universal Radial Drill.
 28" Cincinnati Drill Press, sliding head, T. A.
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 No. 2-B Edlund 4 spindle H. S., B. B. Drill (new machine)
 individual motor drive to each spindle.
 5 spindle Detroit Automatic Driller.
 No. 13-C Natco Multiple Spindle Drill, 12 spindles.
 No. 3-A Warner & Swasey Screw Machine.
 No. 3-S Cincinnati Plain Miller, S. P. D., slotted spindle nose.
 No. 2 Brown & Sharpe Vertical Miller, S. P. D., P. R. T.
 32" Stockbridge Shaper motor drive—A. C. motor.
 No. 5-A Lees Bradner Gear Generator.
 12" Dries & Krump Power Brake, ¾" capacity.
 10" Dries & Krump Hand Brake, 14 gauge.
 50 ton Lucas Forcing Press.
 24" New Era Type Bullard Boring Mill, side head.
 No. 24 New Britain Automatics.
 ¾", 1¼" and 2¾" Gridley Automatics, 4 spindles.
 5—No. 11 Brown & Sharpe Plain Grinders, self contained.
 2 spindle No. 2 LaPointe Broaching Machine.

International Machinery Co., 140 East Larned St.,
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TOGGLE PRESS

One Toledo No. 174S Standard
Geared Type, Single Crank,
Toggle Press, with Tie Rod
Frame. Used about Sixty Days.

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10' Pond vertical, m. d.;
6' bar horiz. N. B. P., floor.

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DRILLS, 7' American Radial, m. d.;
6' Western Radial, m. d.;
No. 513 Baker 5" cap., h. d.

GEAR HOBBERS, 160", $\frac{3}{4}$ d. p.;
78", 2 d. p.

GRINDER, No. 2 Diamond Surface.

HAMMERS, Nos. 2 and 2-B Nazel.

KEYSEATER, No. 3 Baker.

LATHES, 18"x8' Reed-Prentice, g. h.;
3-A W. & Swasey turret;
1½" Bardons & Oliver turret.

MILLER, 24x19"x10' B. & S., 3 hds.;
2-M P. & J.

PIPE MACHINE, 12" Saunders.

PLANERS, 120x100x26' Hewes & P.
28x28x8' Cleveland, openside;
52" Newton rotary.

SHAPER, 24" Cincinnati, motor drive.

SHEARS, 4½" square H. & J. Guillo;
110½ Bliss circle.

MISCELLANEOUS.

Bending machine No. 5 H. & J., m. d.
Trucks, L 4000 lb. Auto. Trans lift,
TL 4000 lb. Auto. Trans tier lift.
Engraver, E-4 Keller mechanical.
Diesinkers, Nos. 2, 3 & 4 Pratt & W.

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Bolt cutter, 24" Acme double head.
 Boring mill, 60" Niles B. P.
 Boring mill, 42" Bullard, 2 heads.
 Boring machine, 3" bar, Lucas.
 Brake, 8"x1" Robinson.
 Brake, 6"x10 gauge Dries & Krump.
 Brake, 52" Peck Stow hand brake.
 Cutting off machine, 6" H. & R.
 Drill, Henry & Wright, 1-spindle.
 Grinder, 14"x36" P. & W. vert. surf.
 Grinder, No. 2 Landis, univ.
 Grinder, No. 1 W. & M. univ. t. & c.
 Grinder, No. 69 Heald.
 Keyseater, No. 1 Davis, 1"-1".
 Keyseater, No. 2 Catlin 1"-2".
 Lathe, 26/48"x14" McCabe, dbl. sp.
 Lathe, 28"x12" Greaves-Klusman.
 Lathe, 24"x24" Schumacher-B., cone.
 Lathe, 20"x12" Hendey, q. c. g.
 Lathe, 26"x12" Bridgeford, g. h., q. c. g.
 Lathe, 17"x10" L. & S. q. c. g., taper.
 Lathe, 18"x10" Monarch, q. c. g.
 Lathe, 16"-18"x8" L. & S., q. c. g.
 Lathe, 15"x8" Porter.
 Lathe, 18"x6" Rahn-L., q. c. g., taper.
 Lathe, 14"x8" Porter.
 Lathe, 16"x8" P. & W., grd. hd.
 q. c. g., taper.
 Lathe, 12"x5" Hendey, taper, draw.

Lathe, gap, 28/48"x12" Harrington.
 Lathe, turret, 14"x18", P. & W.
 Lathe, turret, 2x24 J. & L.
 Milling mach., No. 3B Milwaukee.
 Miller, No. 14 Garvin, vertical.
 Miller, No. 3 Becker vertical.
 Miller, No. 14-A Garvin plain.
 Pipe machine, 8" E. C. & B., belt.
 Pipe mch., 8" Saunders, belt dr.
 Pipe machine, 6" Saunders 24-4".
 Pipe machine, 6" Oster belt.
 Pipe machine, 3" Jarecki No. 7B.
 Pump, 3/4"x8x7 Worthington, new.
 Punch, 24" L. & A. No. 4 s. e.
 Punch, shear, No. 1 Buffalo Univ.
 Radial drill, 4" Dreses, s. p. d.
 Radial drill, 4" Bickford plain.
 Radial drill, 3/4" Mueller, cone.
 Radial drill, 3/4" Bickford, gear box.
 Radial drill, 3" Western, motor.
 Saw, cold 22" blade Gleim, 6" cap.
 Shaper, 24" Hollingsworth cone.
 Shaper, 24" Hendey friction.
 Shaper, 16" Gould & Eberhardt.
 Shear, 8"x1" Ohl.
 Shear, 8"x3/16" Niagara No. 792.
 Shear, 82"x16 gauge Niagara No. 552.
 Shear, 30" Niagara power.
 Wheel press, 200 ton Putnam hydr.

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 20" Milwaukee Shaper B. G.
 24" Rockford Shaper B. G.
 No. 2 Brown & Sharpe Plain Miller.
 No. 3 Ohio Universal Miller (fully equipped).
 2" Bignall & Keeler Pipe Machine. P. D. Q. C.
 3" Bignall & Keeler Pipe Machine. P. D. Q. C.
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 36S G. & E. Gear Cutter. 36"x12".
 3 Spindle Allen H. S. B. B. Drill.
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96" Betts, Two swivel heads, Table 96" dia., Motor Drive.

60" Bullard, Two swivel heads, Single Pulley Drive.

42" Bullard, Two swivel heads, Single Pulley Drive.

42" King, Power Rapid Traverse, Two swivel heads, Motor Drive.

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No. 4 Cincinnati High Power Pl. No. 1½-B Milwaukee Vertical.

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6" Drees Semi-Universal.

4" American Plain.

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3" Drees Plain.

3" Niles-Bement-Pond Plain.

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Turret Lathe, 18" Libby, S. P. D.

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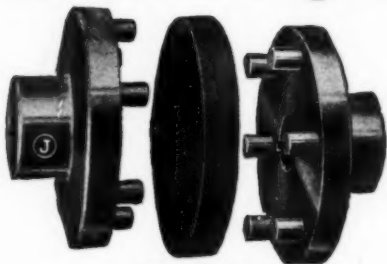
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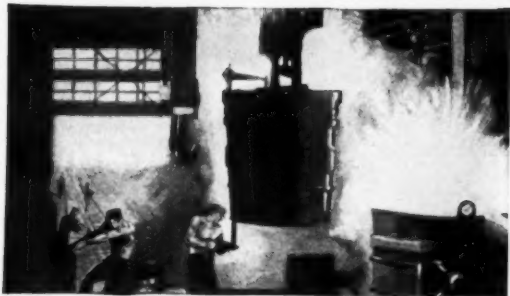
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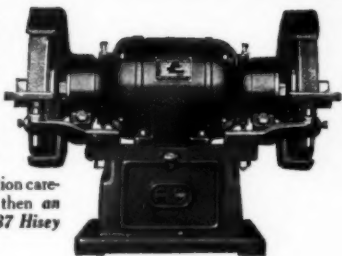
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